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Open Educational Resources: A Collaborative Platform for In-service Teachers

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Abstract: *Open Educational Resources (OER) has emerged as one of the contemporary prominent knowledge-sharing platforms in the 21st Century. New educational opportunities are arising in a digitally enhanced collaboration amongst learners. This collaboration could be a new platform for older socio-epistemic hierarchies and marginalisations or create an opportunity to bring down the barriers based on socio-economic dimensions of learners' accessibility to knowledge. OER represents the efforts of a worldwide community, empowered by the internet, to help equalize the access to knowledge and educational opportunities. This study is an attempt to understand the process of using OER by teachers, identify the various problems they encounter and provide some possible solutions to these problems. It explores upon the possibilities of OER as a tool for collaborative learning in teacher education. The study was conducted in a participatory action research mode. The study built up around OER which was collaboratively developed by the researchers and a sample of school teachers. An online interactive platform was created among this group using wikisite. The major findings provide insights to the processes that could help in promoting continuing professional development (CPD) in teacher education with the help of OER.*

Keywords: Inservice teachers, open educational resources, online platform

Introduction

The contemporary world is marked by an increasing spread of the tools and web of technology. But these developments are marked by a paradox where a significant section of our society is celebrating this quantitative progression as beginning of a new age of freedom on one hand while on the other hand, we have a net of Informational Technology which is superficially widening in our Educational Institutions wherein we find older socio-epistemic hierarchies and marginalization being reproduced, though on a different, more promising and seductive dimension. But the adage that knowledge grows by sharing is not an empty boast and both the ancient wisdom and the modern science testify to the responsibility based on the knower to partake in a communion not just to spread the word but also to falsify, certify and fraternize truly. And it is up to us to determine whether the continuously evolving world of technology is going to be new platform for older disparities or whether we make an opportunity out of it to bring down the barriers based on economic and social dimensions of learners of accessibility to knowledge

It is in this scenario that the Open Educational Resources (OER) provide us the window to democratize the world, now and for the future. The roots of OER can be traced to

Open-Education Movement with the motive of free access to educational resources. The idea behind the movement is to create a world in which the desire to learn is fully met by the opportunity to do so and where anyone, anywhere is able to access opportunities to gain knowledge and to construct the knowledge according to one's own context.

Inspired by Open Education Movement, UNESCO, in 2002, introduced Open Educational Resources at a conference and defined it as:

> *"The open provision of educational resources enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non- commercial purposes"* (Johnstone, 2005).

OER has a very short history in the field of education and needless to say, it is in its infancy stage in the Indian context. There are of course various researches which examine the usability and sustainability of OER, but there is a dearth of research regarding OER in the context of In-service teachers. This study is an attempt to understand to the process of using OER by In-Service teachers and to identify various problems and their possible solutions while using OER. Above all, this was an attempt to explore the usefulness of OER as a tool for the continuous professional development of In-service teachers.

The objectives of the study were:

1. To develop the OER materials for In-service teachers
2. To understand the interaction among In-service teachers while using OER
3. To identify the problems faced by the In-service teachers while using OER
4. To suggest possible solutions to the problems faced by In-service Teachers during the use of OER

Method

To answer the research questions of this study, participatory action research (PAR) method has been chosen. The rationale behind the method was provision for continuous modifications during the implementation process, as it does not culminate the process but initiates, a continuous, on-going process capable of creating a new story and bringing to life, a self-sustaining enriching resource. (Koshy, 2005)

While deciding the sample for the present study following factors were kept in mind:

1. The duration of the study was around 3 months.
2. As the Participation Action Research method was chosen for the present study so it was necessary that all the participants in the sample should be involved consistently because without their active participation and regular feedback it was not possible to conduct this study.
3. There was a need of a common platform on which all participants can interact regularly.

So by using the method of purposive non-random sampling (Cohen, Manion & Morrision, 2000) technique and with the help of social networking websites 20 In-service teachers were selected as the sample who were teaching mathematics at secondary school level in Delhi. All of them had internet facility.

Basically PAR involved following four steps:

I. Plan
II. Action
III. Observation
IV. Reflection

Plan

First of all the In-service teachers were introduced with the concept of OER and following questions were randomly asked:

1. Do you think there is a need for OER to be used in In-service teaching?
2. Do you think you have enough ICT skills to adopt OER?
3. Do you think that you would benefit from your newly gained skills if you were given exposure to create and use of OER?

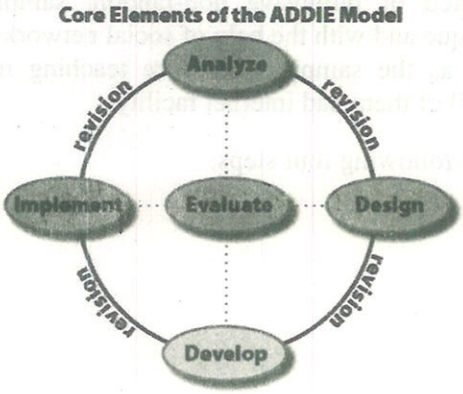
After that planning to develop OER was done by keeping various points which emerged during the discussion and specific objectives of the research inconsideration.

Action

The ADDIE instructional model has been used to plan all the steps in designing the Open Online content as OER for the participants. This instructional design development tool helped researchers to think about the OER which is to be developed. The acronym ADDIE stands for

1. Analysis;
2. Design;
3. Development;
4. Implementation; and
5. Evaluation (Molenda, 2003)

The following diagram helps us to understand the ADDIE model:



Source: http://www.karenmcb.com/524/module6/addie_development.html

All the mentioned five steps have been used as the critical elements throughout this open online content's design process.

Promotion of the open content was one of the most important and time consuming part of this research. Various online promotional tools, like e-mailing In-service teachers, social networking sites like Facebook were used for the promotion.

In this analysis step, following questions were answered before designing of OER.

I. Why this content?
II. Length of the content
III. Time-line to prepare the content
IV. Other instructions
V. Participants
VI. Essential skills

The design phase involved a blueprint of the OER on paper. First of all, the topics on which the OER were to be prepared were decided after the discussion with the teachers. The two topics finalized were trigonometry and mensuration.

After designing the blueprint of the content, the development of OER was done in phases. First of all the initial resource materials were developed by the researchers. After that various online platforms were explored which could provide the Wiki sites and Wikidot.com platform was selected. A wiki is a website whose users can add, modify, or delete its content via a web browser using a simplified mark-up language or a rich-text editor. (http://en.wikipedia.org/wiki/Wiki). Wikidot.com provides wiki hosting services to its users. Users can create on demand wikis that are intended for personal, group or educational use.

Following are the features of Wikidot.com:

- Each site gets its own sub-domain on wikidot.com

- Flexible permission system suitable for both public and private wikis
- Customizable themes to create a unique look and feel
- Extensive documentation, and an active community support forum

The researchers then created an account on Wikidot.com, for the purpose of this research work researchers created a Wiki site 'let us learn mathematics together' on Wikidot.com platform. Different pages named 'Trigonometry' and 'Mensuration' were created on Wiki site. The pages were hyperlinked with the main page of the Wiki Site. After that the resource material on two topics was uploaded to two different pages of Wiki Site.

After the development of online content on Wiki Site e-mail invitations were sent to all the participants for registering themselves as members of Wiki Site 'Let us learn mathematics Together'. The complete description of registration process was given in e-mail invitation. The researchers tried to arrange a synchronous online session with all the participants in order to orient them for using of OER on Wiki Site. However, due to different time bound circumstances of participants, researchers had to go for face to face session with them and explained various basic functions available on Wikidot Wiki Site 'Let Us Learnmathematics Together'. The basic function included creating an account and profile, editing of content, forum discussion and query posting in forum.

Starting from the analysis phase evaluation was done during each stage of the development of OER. In Design phase the resource material was evaluated with the help of subject experts. Then in the development phase the Graphical User Interface was redesigned to give user friendly look like Wikipedia to the Wikidot Wiki Site 'Let Us Learn mathematics Together'. During implementation phase participants faced problems in registration process. So the registration process was made simpler and various queries and feedback comment of participants were taken in consideration and relevant changes were introduced.

Observation

Observation was done with the help of various tools with the help of various features and tools of Wikidot website. The researchers observed the In-service teachers' interaction on Wikidot.com website with the help of Observation Schedule and had also kept the record of each modification in developed OER materials done by student teachers simultaneously.

In order to study the process of interaction of the In-service teachers with the OER, Observation schedule had been developed by the researchers. This schedule provided an organised list of events according to which researchers informed In-service teachers in advance. A Semi-structured questionnaire was also developed by the researchers with the help of discussions with the guide and online feedback of the participants. The questionnaire was administered to study the problems faced by In-service teachers while using the OER and their perceptions regarding the usefulness of the OER in understanding the selected topic.

Reflection

As part of the reflective process, after the data was collected from the participants, data was analysed and researcher reflected on his experiences gathered during development of the open online content and how the participants received this content. This reflective process was then utilized for writing the project report based on the participatory action research method. It could be materialised only after analysing the data collected from active participants.

This action research might have been limited due to the fact that there were only 6 active participants. During the time of participant registration, it was assumed that at least half the registered participants would be active participants, but only 6 out of the 25 registered participants were active till completion.

Results

Observation Schedule

Only 11 participants could register themselves as a member of Wiki site. Many of them were facing problem in the process of joining the Wiki site. After the second session, the process of joining the Wiki Site was made simpler and only then the rest of the 13 members were able to register themselves as a member of Wiki site. Now, it is evident that as far as editing of OER content is concerned, in the first month, only eight additions were done in the content of 'Operating System'. After the second orientation session with the participants, the editing of the Wiki content was done 14 times during the third and fourth fortnight. But in the fifth fortnight, the frequency of editing was considerably decreased. This trend somewhere reflects that there is a need of some kind of motivation which ought to be provided to the participants for their active participation in adopting OER.

It was observed that after the second orientation session, a few participants showed interest and shared some useful inputs for 'Trigonometry' with the help of some external links, but by the end of the third fortnight, there was a decline in their interest.

Regarding the deletion of the content matters, the data shows that there was no single participant who deleted anything. Some of them did raise some questions about the various facts/information that were given in the content. This observation shows that some of the participants were concerned about the '*Quality and Authenticity*' of the content. Two queries were pertained to the task bar menu that was embedded in the editing option of the page.

Further the discussion within the forum was another activity that was done more number of times as compared to the other activities. But when one looked at the raw data that was available on the Wiki Site 'Let Us Learn mathematics Together' i.e. the actual description of the discussion; it was observed that only six participants were active in discussion most of the time. Rest of the participants did not participate in discussions.

This was for a range of reasons such as not having the soft skills to participate in the discussions, shortage of time, and not relating to the other discussants.

Questionnaire

The data from the questionnaire revealed that 40 % of the participants had been using computer for more than five years. 50% participants started using computer before two years. 10% of the participants started using computer from last year. Most of the participants were already familiar with the computer and the usage of internet. Computer and internet was not a new thing for them. This familiarity could probably have helped them in the usage OER. It was evident that very few participants used to give more than two hours to the internet daily. The low internet usage time may restrict the possibility of adoption to OER. There can be many reasons for these observations. They might not have the time to use the internet because of factors ranging from a busy academic schedule, unavailability of internet facility or lack of interest. It appears that some of the participants used the internet for academic purposes along with other activities. This observation provides limited scope of using OER by the participants for getting their understanding enriched. It is important to note that the participants who used internet for social networking as well as OER had basic underlying assumption of social learning. Only 30 % of the participants were rephrasing the sentence is required able to use the information gathered from internet regularly. 40% of the participants were often able to use the information according to their needs. 20 % were sometimes able to use the information purposefully.

When asked about OER, some of the participants simply wrote OER meant 'Open Educational Resources'. One of them wrote that it was a Web 2.0 tool with duplex mode of communication. Many of them answered that OER meant freely available resources. Some of them talked about the sharing and editing options available with OER. One of the participants replied that it was a collaborative platform for learning. Many of them had limited knowledge regarding OER. Four of them simply wrote the name of two websites Wikipedia and Wiki space. It thus appears that many of the stakeholders had the basic idea regarding OER and that the OER could be shared freely and be edited by anyone. Some of the participants came to know about OER from the researchers only.

While exploring the purpose of interaction on Wiki site, some categories that emerged included 'Discussion based on content', 'Sharing Ideas', 'Collaborative & Cooperative learning', 'Group learning', and 'better understanding'.

The major difficulty faced while working with OER was 'account creation' as many of them were using this type of platform for the first time. In the second orientation session, this difficulty was removed. Since then, it was found from online discussion that many of the participants were not familiar with the different options available in the menu of the main page of the online content prepared by the researchers with the help of Wikidot platform. The data revealed that Accessibility difficulty was faced by many of them. Navigation and authenticity of the content were the other two major issues for them. There were five Hindi medium teachers but the concern of any type of language barrier

was not expressed as a major issue as compared to the other issues.Some of the participants had problem with the quality of the content. As anyone could edit the content, it was a tedious job to assure the quality of the content. One can say that although sharing platform provided better opportunities of learning, the quality assurance would always be a major concern in OER. Although the appearance of the main page of the content was made like 'Wikipedia' for the purpose of familiarity but then also, four participants raised the issue of Graphic User Interface of the content. 80 % of them agreed that their technological unfamiliarity obstructed their efficiency while working with OER using Wikidot platform illustrations could be added for clarity.

The major findings that of the study are as following:

- There should be proper orientation programme regarding the introduction of OER
- Navigation while using the wikisite should be made easy
- Proper feedback should be given
- More awareness regarding OER is needed
- Graphic User Interface should be more user friendly
- OER should be accessible for all and everyone should be encouraged to use OER
- Quality assurance of the content should be ensured.
- OER should be more culturally adaptable
- Restriction on copy and paste work must be introduced
- One should be allowed to learn at her/his own pace, without any compulsion
- OER should be more interactive and integrative
- Individual's privacy should be maintained
- More organized form of OER should be designed
- Plagiarism must be checked.

Discussion of Results

Development of the OER for In-service teachers is a collaborative task which needs some kind of intrinsic motivation from all of the participants. The participants who had more exposure to internet were more keen to adept OER. The In-service teachers somehow feel themselves over burdened which also restrict their adaptability to new technology. Their previous exposure to computer and internet had a big role in determining their interest in developing OER. Quality and authenticity of the content were the basic issues which need to be kept in mind while developing OER. User friendliness in graphical user interface and familiarity with the different function on Wiki Site were must for the development of OER. Interaction is the key element of the collaborative learning. Synchronous interaction was somewhat more difficult task as compared to the asynchronous interaction as it was difficult that all the participants could access OER at the same time. Interaction could have been more effective if more number of participants were involved in it. Interaction helped the participants in clarifying doubts, developing a better understanding and providing multiple perspectives on the same concept.

Accessibility difficulty option was selected by many of the participants i.e. they were facing problems in accessing the main page of the online content. Navigation and Authenticity of the content were the other two major issues for the participants. It was interesting to learn that language was not a major barrier while using OER. There were four Hindi medium participants for whom language was not a major issue as compared to the other issues. Quality of the content was one of the issues for them. As anyone could edit the content, it was a tedious job to ensure the Quality of the content. One can say that although sharing platform provides better opportunities of learning but the quality assurance will always remain a major concern in OER. Although the appearance of the main page of the content was made similar to 'Wikipedia' to an extent for the purpose of familiarity but then also some participants raised the issue of Graphic User Interface of the content i.e. user friendliness. Lack of motivation and absence of incentives were also the restricting factors for using the OER.

A similar research done on a larger scale, say district or state level might yield results which could be relied upon while making policy decision on OER. It would be good to learn if the participants from the different institutions face similar problems and recommend same solutions or more problems and new innovative solutions for successful implementation of OER in In-service Teaching. Another worthwhile research project could be to meet the participants of this study after a year or two and conduct a focus group study or an interview study of their OER implementations. The other possibility would be to carry out same research with personal interviews with participants, which could have given different results.

This research study aims to provide meaningful recommendations to help promote collaborative learning in In-service teaching with the help of OER. This study can be informative to educators who are the main agents of change and improvement of education in the developing world. The recommendations from this research study can be employed in OER projects implementation in the In-service Teaching. It might be useful for researchers who wish to adopt Participatory Action Research methodology or researchers who want to learn more about OER adaptability and implementation issues in In-service teaching. The vital lesson is to build engaging collaborative online communities to learn and adopt a new concept of using OER in In-service teaching domain.

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Efficacy of the B.Ed. Course of West Bengal among Secondary School Teachers towards Inclusive Education

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Abstract: *Inclusive education has increasingly become a focus of debate in discussions about the development of educational policy and practice around the world (Farrell and Ainscow, 2002; Lindsay, 2007). Scholars like Pijl et al., (1997) have described inclusive education as a 'global agenda'. Inclusive education, therefore, is now seen as central to human rights and equal opportunities and a priority policy objective of liberal democracies including India where Right to Education is constitutionalized. The teachers exposed to the traditional B.Ed. curriculum and the practicum in West Bengal reveals a colossal knowledge gap. They are often apprehensive about such inclusive classes and of the RTE Act 2009 and reportedly lack confidence in handling children with special needs. The B.Ed. course in the prevalent form in West Bengal offers only a theoretical paper on special and inclusive education, which is believed to be sufficient to train teachers for effective inclusive practices in real life inclusive classes. With major changes advocated by NCTE for quality teacher education in the nation, West Bengal too would undergo curricular reforms, but to what extent and in what form the concern for developing teahcers for inclusive settings would be addressed remains a grey area till date. This paper remains a humble attempt at exploring the efficacy of the prevalent B.Ed. Course on the teachers of West Bengal in developing a favourable attitude to inclusive education. The study has been conducted on 400 secondary school teachers, both trained and untrained, from ten districts of east, west, north and southern parts of West Bengal. The findings of the study reveal significant factors like personal experience with children with special needs as crucial that must be taken cognizance of for developing teachers with a favourable attitude towards education of the children with special needs in regular classrooms. The study points out the importance of such factors that may develop teachers through a revised form of the Practicum that allows trainees an exposure to children with special needs and a revised evaluation system that assesses the teacher's competencies of addressing diversity in the class.*

Keywords: Inclusive education, teacher education, attitude, practice

Introduction

With the major changes proposed for quality enhancement in teacher education, the B.Ed. course is about to undergo major curricular changes in West Bengal, but how far the prime concern of developing teachers for inclusive settings will be taken into cognizance and in what form remains a largely gray area that needs to be explored. Increase in duration with scant regard for revision in the prevalent nature of practicum and evaluation in West Bengal is unlikely to ensure quality in preparation of teachers fit

for addressing diversity in modern society. The present system followed in West Bengal has prepared teachers for years now with Inclusive Education as a theoretical part of the curriculum, but how far it has succeeded in developing confident teachers with a favourable attitude towards the children with special needs inducted into their regular classrooms under RTE, remains a gray area till date. Inclusive education has increasingly become a focus of debate in discussions about the development of educational policy and practice around the world (Farrell and Ainscow, 2002; Lindsay, 2007). Scholars like Pijl et al. (1997) have described inclusive education as a 'global agenda'. Inclusive education, therefore, is now seen as central to human rights and equal opportunities and a priority policy objective of liberal democracies including India where Right to Education is constitutionalized. The Right to Education Act 2009 has granted the issue a central significance and inclusion has emerged as 'an appropriate philosophy and a relevant framework for restructuring education' (Thomas et al., 1998, p.4), with attempts at transforming the mainstream to enhance its capacity for responding to diverse learners (Ainscow, 1999). However, what emerges as a crisis largely unaddressed till date is the development or preparation of teachers' attitude in creating a truly inclusive class in a mainstream school. The Ministry of Human Resource Development, Govt. of India, too voices the emerging concern with the current status of teacher education and the urgent need for "the changes in the teacher education curriculum from the perspective of inclusion of children with special needs (CWSN)". The nature and adequacy of the training imparted, remain problematic and must come under the scanner for effective inclusion in the educational institutes of India, specifically West Bengal. Most of the children with special needs, due to prolonged social inequity, privations and handicaps subsist in less conspicuous and less verbalized mode of existence and the teachers' role in aiding their sudden exposure to the mainstream world of cognitive, articulatory and information explosion to be "included", is crucial. The teachers exposed to the traditional B.Ed. curriculum and the practicum in West Bengal reveals a colossal knowledge gap. They are often apprehensive about such inclusive classes and of the RTE Act 2009 and reportedly lack confidence in handling children with special needs. The B.Ed. course in the prevalent form in West Bengal offers only a theoretical paper on special and inclusive education, which is believed to be sufficient to train teachers for effective inclusive practices in real life inclusive classes. Most universities in West Bengal like Calcutta University and West Bengal State University have made this paper on Special Education compulsory instead of its earlier optional status, whereas it remains an optional paper in most other universities like Jadavpur University. The paper proposes to explore how far the B.Ed Course of West Bengal is relevant or adequate in generating in the teachers an attitude conducive to inclusive education. There are a few teachers with B.Ed. degree in Special Education in some schools of West Bengal, but they were left out of the ambit of this study since the scope of this study is limited to the efficacy of the regular B.Ed Course of the state in fostering favourable attitude among the teachers towards education of challenged children in regular classrooms.

Objectives of the Study

The objectives of the study are as follows:

- To find out whether there is any significant difference in attitude towards inclusive education between teachers with B.Ed. and those without B.Ed.
- To find out whether there is any significant difference in attitude towards inclusive education between urban and rural teachers.
- To find out whether there is any significant difference in attitude towards inclusive education between trained male and female teachers.
- To find out whether there is any significant difference in attitude towards inclusive education between teachers exposed to workshops on inclusive education for in-service teachers conducted by Sarva Siksha Mission and those who were not exposed to the workshops.
- To find out whether there is any significant difference in attitude towards inclusive education between trained teachers who had studied Special Education as a compulsory or optional paper in B.Ed. and those trained teachers who had not studied Special Education in B.Ed., the paper being optional in the course.
- To find out whether there is any relation between a teacher's personal experience with challenged children and his/her favourable attitude towards inclusive education, irrespective his/her B.Ed. degree.

Hypotheses

H_{01}: There is no significant difference in attitude towards inclusive education between teachers with B.Ed. and those without B.Ed. degree.

H_{02}: There is no significant difference in attitude towards inclusive education between urban and rural teachers.

H_{03}: There is no significant difference in attitude towards inclusive education between male and female teachers.

H_{04}: There is no significant difference in attitude towards inclusive education between teachers exposed to workshops on inclusive education for in-service teachers conducted by Sarva Siksha Mission and those who were not exposed to the workshops.

H_{05}: There is no significant difference in attitude towards inclusive education between trained teachers who had studied Special Education as a compulsory or optional paper in B.Ed. and those trained teachers who had not studied Special Education in B.Ed., the paper being optional in the course.

H_{06}: There is no relation between a teacher's personal experience with challenged children and his/her favourable attitude towards inclusive education, irrespective his/her B.Ed. degree.

Method

Population and sample

A sample of 400 secondary school teachers, consisting of both trained and untrained teachers were selected randomly from secondary schools from Kolkata, North 24 Parganas, South 24 Parganas, Hoogly and Howrah districts in the southeastern part of West Bengal, Purulia and Bankura in the Western part of the state, and Malda, Siliguri and Jaipaiguri in the northern part of the state. It was not possible to cover each and every district of the state and so representative districts from east, south, west and northern parts were selected for the study.

Tool and technique

A standardized tool TASTIE – SA [Teacher Attitude Scale towards Inclusive Education] developed by Sood & Anand of Harprasad Institute of Behavioral Studies was adopted for the survey. Certain modifications of the scale were made on the basis of need of the present study after in-depth analysis of previous research studies and critical discussions with experts. The tool thus modified had 48 questions with two options 'yes' and 'no'. Values of 2 and 1 were ascribed to the options 'yes' and 'no' respectively. The five broad areas of the attitude scale so developed are:

i) Psychological/Behavioural Aspects of Inclusive Education: This comprised of statements reflecting predispositions of teachers with respect to influence of inclusive education on the pupils. These are mainly related to the perceived effect of various inclusive education strategies on students' cognitive and affective characteristics.

ii) Social and Parents-Related Aspects of Inclusive Education: This area includes the statements concerning teachers' attitude towards influence of inclusive education on development of social values among school children. It also covers statements related to teachers' perception of social and parental support for promoting inclusive education in general educational institutions.

iii) Personal Experience and Exposure related Aspects of Inclusive Education: This area includes statements concerning the teachers' personal experience and exposure to challenged children.

iv) Curricular and Co-curricular Aspects of Inclusive Education: This area has statements related to teachers' perception about teaching methodologies adopted to impart education in inclusive settings, and various curricular and co-curricular activities organized in schools by them to promote inclusive education.

v) Administrative Aspects of Inclusive Education: This area has statements that reflect the teachers' disposition towards various governmental provisions, infrastructural facilities, provision for teacher development/training as well as commitment of administrative machinery for promoting inclusive education in schools.

The modified self-administering and self-reporting questionnaire with these aspects was a two point scale. The questions were translated into Bengali for the benefit of the teachers and a few questions were added. The tool was tested for reliability and validity. The preliminary draft of the attitude scale was administered on a sample of 250 secondary school teachers of Kolkata and suburbs in West Bengal. The selection of these teachers was made from 35 secondary and higher secondary schools by employing multistage stratified proportionate sampling technique.

Reliability: The reliability of the scale was established by – (a) Test-retest Method and (b) Internal Consistency of the scale. The sample of 250 secondary school teachers, consisting of both male and female school teachers was tested twice with a gap of two months between testing and retesting. The product moment correlation 'r', that is the reliability index, was 0.82. Thus the scale was found to be reliable. The internal consistency of the scale was judged by computing the coefficients of correlation between total score on the scale and score on each of the five areas of the scale. The values so deducted established the reliability of the scale.

Validity: The validity of the scale was ascertained on the basis of content validity, cross validity, Item validity and Intrinsic validity. The aspects of inclusive education used in the modified scale has been substantially supported by literature available in the area of inclusive education and the views and suggestions sought from various experts at the time of preparing preliminary draft of the scale. Thus the scale can be said to possess adequate content validity.

Each sample of the sample teachers selected for carrying out the item analysis was different entirely from one another in order to avoid the chance of errors of carry over effect and thus it may be said that cross validity of the scale has been ensured.

Item validity was established since only those items with t-value of 1.75 or above were retained in the final form of the scale. The intrinsic validity for the scale was ascertained by ensuring internal consistency of the scale through product moment correlation method. The test retest realiability coefficient of 0.82 established the intrinsic validity of the scale.

Procedure of Data Collection

The tool was applied in person and also sent by mail to teachers in some cases. Sufficient time was given to the teachers before collecting their feedback so that the responses were well thought over and not perfunctory. Questions were explained in cases where it was needed by the respondents.

Analysis and Results

Table 1 shows analysis of data obtained to show whether there is any influence of B.Ed degree on a teacher's attitude towards inclusive education.

Table 1

	Teachers with B.Ed. degree	Teachers without B.Ed. degree	Total
Teachers with favourable attitude	32	20	52
Teachers with unfavourable attitude	259	89	348
Total	291	109	400

$\chi 2$ Test was applied to test null hypothesis at 5% level of significance.
$\chi 2$ value, computed based on the above data after applying Yate's correction for continuity
$= [\{ |32 \times 89 - 20 \times 259| - 400/2 \}^2 \times 400] / (32+20) \times (259+89) \times (32+259) \times (20+89)$
= 3.790 (rounded to 3 decimal places)

Tabulated value of $\chi 2$ with Degrees of Freedom 1, at α-level 0.05 = 3.841

Inference: Since the computed $\chi 2$ value is less than the tabulated value at 5% level, the null hypothesis is accepted and we have no reason to believe that B.Ed. degree has any influence on a teacher's attitude towards inclusive education.

Thus hypothesis $\mathbf{H_{01}}$ is accepted.

Table 2 shows analysis of data obtained to show whether there is any significant difference between urban and rural teachers in their attitude towards inclusive education.

Table 2

	Urban teachers	Rural teachers	Total
Teachers with favourable attitude	31	21	52
Teachers with unfavourable attitude	159	189	348
Total	190	210	400

$\chi 2$ Test was applied to test null hypothesis that 5% level of significance.
$\chi 2$ value, computed based on the above data after applying Yate's correction for continuity
$= [\{ |31 \times 189 - 21 \times 159| - 400/2\}^2 \times 400] / (31+21) \times (159+189) \times (31+159) \times (21+189)$
= 3.518 (rounded to 3 decimal places)

Tabulated value of $\chi 2$ with Degrees of Freedom 1, at α-level 0.05 = 3.841

Inference: Since the computed $\chi 2$ value is less than the tabulated value at 5% level, the null hypothesis is accepted and we have no reason to believe that area has any influence on a teacher's attitude towards inclusive education.

Hypothesis $\mathbf{H_{02}}$ is thus accepted.

Table 3 shows classification of data obtained from the survey questionnaire to show whether there is any significant difference between male and female teachers in their attitude towards inclusive education.

Table 3

	Male teachers	female teachers	Total
Teachers with favourable attitude	28	24	52
Teachers with unfavourable attitude	183	165	348
Total	211	189	400

$\chi 2$ Test was applied to test null hypothesis that 5% level of significance.
$\chi 2$ value, computed based on the above data after applying Yate's correction for continuity
$= [\{ |28 \times 165 - 24 \times 183| - 400/2 \}^2 \times 400] / (28+24) \times (183+165) \times (28+183) \times (24+165)$
$= 0.029$ (rounded to 3 decimal places)

Tabulated value of $\chi 2$ with Degrees of Freedom 1, at α-level 0.05 = 3.841

Inference: Since the computed $\chi 2$ value is less than the tabulated value at 5% level, the null hypothesis is accepted and we have no reason to believe that gender has any influence on a teacher's attitude towards inclusive education.

Hypothesis H_{03} is thus accepted.

Table 4 exhibits classification of data obtained from survey to show whether there is any significant influence of workshops on inclusive education for in-service teachers conducted by Sarva Siksha Mission on the teachers' attitude towards education of challenged children in their regular classrooms.

Table 4

	Teachers with SSA training	Teachers without SSA training	Total
Teachers with favourable attitude	29	23	52
Teachers with unfavorable attitude	232	116	348
Total	261	139	400

$\chi 2$ Test was applied to test null hypothesis that 5% level of significance.
$\chi 2$ value, computed based on the above data after applying Yate's correction for continuity
$= [\{ |29 \times 116 - 23 \times 232| - 400/2 \}^2 \times 400] / (29+23) \times (232+116) \times (29+232) \times (23+116)$
$= 2.369$ (rounded to 3 decimal places)

Tabulated value of $\chi 2$ with Degrees of Freedom 1, at α-level 0.05 = 3.841

Inference: Since the computed $\chi 2$ value is less than the tabulated value at 5% level, the null hypothesis is accepted and we have no reason to believe that SSA Training has any influence on a teacher's attitude towards inclusive education.

Thus hypothesis H_{04} is accepted.

Table 5 shows classification of data collected from survey questionnaire to find out whether there is any significant difference in attitude of those trained in-service teachers who had studied the Special Education Paper which is their only exposure to inclusive education on the present teacher education system of West Bengal, in their B.Ed. course and those trained in service teachers who had not studied this paper, the paper being optional in their university that conducts the B.Ed. Course.

Table 5

	Teachers who had special paper	Teachers who didn't have special paper	Total
Teachers with favourable attitude	21	11	32
Teachers with unfavourable attitude	126	133	259
Total	147	144	291

$\chi 2$ Test was applied to test null hypothesis that 5% level of significance.
$\chi 2$ value, computed based on the above data after applying Yate's correction for continuity
$= [\{ |21 \times 133 - 11 \times 126| - 400/2 \}^2 \times 400] / (21+11) \times (126+133) \times (21+126) \times (11+133)$
$= 3.284$ (rounded to 3 decimal places)

Tabulated value of $\chi 2$ with Degrees of Freedom 1, at α-level 0.05 = 3.841

Inference: Since the computed $\chi 2$ value is less than the tabulated value at 5% level, the null hypothesis is accepted and it may be inferred that the Special Paper does not have any influence on a teacher's favourable attitude towards education of challenged children in their regular classrooms.

Table 6 shows how individual experience with children with special needs influences a teacher's perception, understanding of and attitude towards inclusive education irrespective of his or her formal teacher education degree in West Bengal. Only those teachers with a favourable attitude to inclusive education were taken for the analysis to find out the impact of personal experience behind this positive attitude and to see how far the formal teacher education program in form of the prevalent B.Ed. course in West Bengal has any influence in developing a favourable attitude towards inclusive education.

An Analysis of Variance (ANOVA) was conducted to examine whether personal experience with differently abled children, and having B.Ed degree, has any influence on

a teacher's favourable attitude towards inclusive education. We categorized the 52 teachers, whose survey responses have been 'favourable', as follows:

	Teachers with personal experience	Teachers without personal experience	Total
Teachers with B.Ed.	25	7	32
Teachers without B.Ed.	18	2	20
Total	43	9	52

ANOVA calculations are as follows:

Sum of squares of raw values = 1002
Correction Factor = $(52)^2 / (2 \times 2) = 676$
Total SS (Sum of Square) = 1002 – 676 = 326
SS due to Degree = $[(32)^2 + (20)^2] / 2 - 676 = 36$
SS due to Personal Experience = $[(43)^2 + (9)^2] / 2 - 676 = 289$
SSE (Sum of Squares due to Error) = 326 – 36 – 289 = 1

F values are computed as follows

Factors	**Degrees of Freedom**	**Sum of Square**	**Mean Square**	**Observed F**
B.Ed. Degree	1	36	36	36.00
Personal Experience	1	289	289	289.00
Error	1	1	1	

Tabulated value of F with Degrees of Freedom 1,1 at α-level 0.05 = 161.4

Thus we observe that:

F value for the factor 'B.Ed. Degree' < tabulated F value.
F value for the factor 'Personal Experience' > tabulated F value.

Hence the Analysis of Variance indicates that personal experience with differently abled children has a positive influence on a teacher's favourable attitude towards inclusive education. But no such conclusion can be drawn for B.Ed degree.

It was found that there is no significant difference between trained and untrained teachers in their attitude to inclusion of children with special needs in regular classes. It was also found that there is no significant difference between teachers who had not studied the Special Education paper, that being optional in their B.Ed course and those who had studied the paper as a compulsory subject in their B.Ed. Course in their attitude to inclusion of children with special needs in regular classes.

Discussion and Implications

From the study conducted it is found that in the present structure of the B,Ed. course in West Bengal, the only exposure to inclusive education is through a paper on Special education that carries 50 marks in some universities and 100 in some others. Again in some other universities this lone paper is optional and hence all trainees are not exposed to it. There is no scope of practice teaching in essentially inclusive settings as all schools in the state do not have challenged children and the prime concern while sending trainees to schools for Practice teaching remains the school's proximity to the teacher education institute, with absolutely no concern for the fact that they may not get to teach in inclusive settings. There is also scant scope for systematic workshops on inclusive education by experts as a part of the B.Ed. Course or visit to inclusive institutes to observe strategies of addressing the special needs of the challenged children. There is no scope for any collaboration between regular teacher education and special teacher education courses in the state. The practical examinations simply assess the general teaching abilities and skills of a teacher and there is absolutely no marks or assessment scheme for teaching skills needed to address diversity in inclusive classes. A trainee, therefore, even after systematic teacher education, remains in dark about inclusive settings and necessary skills and competencies. The workshops conducted by SSA too may impart some knowledge to the teachers, but fail to give them hands on experience in dealing with challenged children in regular classrooms and hence, as the study reveals, such workshops are inadequate to generate confidence and a positive attitude towards inclusive education among the in-service teachers already burdened with regular workload and pressure to finish the examination oriented syllabus on time. Gender too, as revealed by the study, is not a significant factor in this regard. What is indeed interesting is the finding that personal experience in any form is a significant factor in developing a positive or favourable attitude towards teaching children with special needs in regular classrooms. It is seen that among the teachers with favourable attitude towards inclusive education, formal B.Ed. degree is not so much a significant factor as is personal experience with such children with special needs. This finding is crucial especially when the present B.Ed. Course in West Bengal practically has no scope of providing the trainees any form of experience in teaching in inclusive settings or providing any scope for honing skills necessary for addressing diversity in the class. The trainees are in fact granted no scope of any practical exposure to the children with special needs in the prevalent teacher education system in the state, and nor are they evaluated on their ability to teaching inclusive settings. The study reveals the significance of personal experience in developing a positive attitude towards teaching children with special needs in regular classrooms and development of true empathy instead of sympathy. Thus the findings of this study point out to the need of reconsidering the teacher education system in the state with more emphasis of planned and systematic exposure to and evaluation of skills needed to effectively address diversity in a regular classroom and to foster essentially inclusive settings. The teachers would be more confident and would be able to contribute to the development of a truly inclusive society as a necessary aftermath.

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Study of the Level of Anxiety amongst Boys and Girls Appearing for Board Examination in Delhi and NCR

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Abstract: *'Examination Anxiety' has been observed as the major cause of problem for all of us. This problem has also been observed in students as a result of which, behavioural problems have been on an increase amongst them. In the following study it has been found that anxiety level of the boys is higher as compared to that of girls even though this difference is marginal. A significant role can be played by the school authorities, teachers, parents and counsellors to reduce the anxiety level in students. Compassion, understanding, love, care and a strong bond between the teacher and taught can play an important role in reducing the anxiety level among the teenagers.*

Keywords: Examination anxiety, teenagers, board examination

We live in a test-conscious, test giving culture in which the lives of people are in part determined by their test performance.

(Sarason et al., 1960, p.26)

Introduction

Education is a path through which we transform the thoughts and behaviour of an individual in a desirable way. To see the results of our educational goals that how much we have achieved is through conducting tests on students. This process of conducting a test is called Examination. "Education is the process of change and with the help of education an individual becomes a useful member of the society. It also provides its services in the transmission of human heritage from one generation to another" (Ahmad, 2007). Educational system is a hub consisting of Curriculum, Teacher, Students and Examination as its foremost parts. Examinations have remained a part of the educational system from the ancient times. So it can be said that educational system without examinations is an empty pot.

As we all know that examination is an innate part of the Indian society and many important academic future decisions are based on the results that the child secures in Board examinations. The results in these examinations are so important that even their character is often judged by the marks that they have secured in the examination.

"Examination is the process of analysis, recognition, and evaluation, understanding in any type of academic evaluation conducted to measure and assess the students' academic performance". (Goodstein and Lanyon, 1975)

The amount of pressure that these examinations bring with them leads to an increase in the anxiety level of both boys and girls before and during examinations .Today, an increase in the level of anxiety is of common occurrence. Anxiety is not a disease and is very common and everyone experiences high anxiety level at some point or the other. Anxiety is one of the psychophysiology difficulties (Roger, 2001). According to Sarason (1988), "Anxiety is a basic human emotion consisting of fear and uncertainty that typically appears when an individual perceives an event as being a threat to the ego or self esteem" .Various studies on anxiety have shown that a high level of examination anxiety leads to poor academic achievement (Sweetnam, 2002; Austin, Partridge, Bitner and Wadlington, 1995; Cassady, 2001). Test anxiety is a major factor contributing to a variety of negative outcomes including psychological distress, academic underachievement, academic failure, and insecurity (Hembree, 1988).

Generally, anxiety can be either a trait or a state. A trait anxiety is a stable characteristic or traits of the person. A state anxiety is one which is aroused by some temporary condition of the environment such as examination, accident, punishment etc. Academic anxiety is a kind of state anxiety which relates to the impending danger from the environment of the academic institutes including teacher, certain subjects like Mathematics, English etc. Anxiety stems from many sources, but is most commonly caused by a lack of exam preparation, poor study habits, cramming the night before the exam, poor time management, lack of organization of the text, notes, and homework are examples of being unprepared. Not studying at all or waiting until the last minute can leave individuals feeling anxious and overwhelmed. (Dr. Arun Kumar Singh and Dr. Arpana Sen Gupta, Department of Psychology Patna University, 1984)

Zeidner (1998) has outlined three components of anxiety:

- **Cognitive:** The negative thoughts and depreciating self-statements that occur during assessments (e.g. 'If I fail this exam my whole life is a failure') and the performance-inhibiting difficulties that may arise from anxiety (e.g. recalling facts and difficulty in reading and understanding questions);
- **Affective:** The person's appraisal of their physiological state (such as tension, tight muscles and trembling);
- **Behavioural**: poor study skills, avoidance and procrastination of work.

Need and justification of the study

In order to compare the anxiety level among boys and girls of various schools of Delhi and NCR, a study was conducted .The main aim of the study was to compare the level of anxiety among boys and girls before appearing in the Board Examination with emphasis on ways of managing the anxiety level. The study is intended to provide a broad

understanding to ascertain the reasons for high anxiety level in these students and also to suggest remedies to them for reducing the anxiety level.

Reasons of anxiety

The Anxiety Disorder Association of America (ADAA) has identified a variety of variables that cause anxiety which include:

a) Anxiety, attention or obsessive compulsive disorders.

b) Perfectionist tendencies and unrealistic expectations.

c) Negative self esteem, self statements and criticism.

d) Poor motivation, lack of confidence and procrastination.

e) Inadequate study and test taking skills.

f) Poor prior testing performance.

g) Pressure from peers, family and teacher.

h) Unfavourable testing environments.

i) Invalid flawed and timed tests

j) Ineffective teaching.

Children struggling with excessive anxiety before examinations show the following symptoms:

- Apprehension of failing in the examinations
- Lack of concentration and hard work
- Demands from parents and teachers to do well in the examinations
- Wrong eating habits
- Not getting enough sleep
- Lack of exercise
- Fear of securing less grade

Statement of the problem

To study the level of Anxiety amongst the boys and girls appearing for Board Examination in Delhi & NCR

Objectives of the Study

- To compare the level of anxiety among boys and girls before appearing in the Board Examination.
- To ascertain the reasons for high anxiety level in these students.

- To suggest remedies to them for reducing the anxiety level.

Method

Sample

For the present study, the sample was drawn from Senior Secondary Schools of Delhi and NCR. A sample of 100 students was drawn from these schools on the basis of gender. The data consisted of 50 boys and 50 girls.

Procedure and data collection

A total of 100 students were selected based on random stratified sampling on the basis of gender. After the selection of the sample, the tool was administered. The data collected was analyzed to derive the outcomes.

Delimitations

1. The sample was drawn from Government Schools and Private Schools. The sample was mainly drawn from Schools of South and North region of Delhi & NCR.

Tool used

The following tool was used for collection of data:

Manual for Academic Anxiety Scale for Children (AASC) by Dr. Arun Kumar Singh and Dr. Arpana Sen Gupta, Department of Psychology Patna University, 1984

This test has been developed for the use of school students between the age group of 13 to 16 years. This test consists of 20 items.

Statistical techniques

Keeping in view the objectives of the study, the following statistical techniques along with the rational for using them were employed to analyze the data obtained:

- Central Tendency (Mean)
- Dispersion (Standard Deviation)
- Statistical Package for the Social Sciences (SPSS)

Analysis and Results

It can be interpreted from Table 1 that the t-value is significant at the 0.5 level of significance and thus, it can be analyzed that there is significant difference between the anxiety level of boys and the girls studying in the schools.

Table 1: *Interpretation of the data collected from the schools*

Dimensions	Girls	Boys
Mean	10.46	10.56
Variance	10.74	8.18
Observations	30	30
Hypothesized Mean Difference	0	
Df	57	
t Stat	-0.12	
P(T<=t) one-tail	0.45	
t Critical one-tail	1.65	
P(T<=t) two-tail	0.90	
t Critical two-tail	2.002*	

* Significant at the 0.5 level

The anxiety level of boys is higher than the anxiety levels of the girls irrespective of the schools they are studying in. However, as it is evident from the result of the data, the difference between this anxiety levels is very less.

Conclusion

Contrary to the belief, the anxiety level of the boys as per the findings of our study is higher as compared to that of girls even though this difference is marginal.

One of the reasons could be the attitude of boys towards their studies as compared to those of girls. It is generally observed that the girls are regular and sincere in their studies throughout the year which could be the reason for comparatively less anxiety before the examination.

The boys on the other hand have been found to be carefree and careless to some extent through the year. Lack of preparedness during the period of examination could be the reason for more anxiety during the examination.

Suggestions to Reduce Anxiety

High examination anxiety affects students badly and turns out to be a big barrier for them in achieving success. Managing examination anxiety in students is a challenging task and needs regular guidance. Students, parents, schools and academic counsellors should follow some guidelines and practice in advance in order to beat anxiety during examinations. Some suggestions that may help in coping with the anxiety are:

- Students should form good study habits, stay focused and keep optimistic approach before and during the examination.
- They should maintain a healthy diet and try to get adequate sleep a night before the examination.
- Regular exercise and practice of Yoga is a good stress buster. Yoga is very beneficial for the physical and mental health. Yoga has been accepted as a successful technique not only to develop spirituality, but also as an effective means to maintain psycho-physiological and biochemical homeostasis leading to good health (Malathi et al., 1998), (Shapiro et al., 2007), (Uebelacker et al., 2010).
- The teacher should guide and explain to the students about the effective study skills, strategies, format and techniques of attempting examinations, number of items included in the test so that they sustain their self confidence during examination.

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Role of Teams Games Tournaments (TGT) in Reducing Academic Anxiety of High School Students

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Abstract: *Academic anxiety is a kind of anxiety which relates to the impending danger from the environment of the academic institutions including teachers, certain subjects like Mathematics, English etc. (Singh and Gupta, 1984). Cooperative Learning has been proved to be one of the most creative and practical approaches and strategies in classroom. With the shift from teaching to learning, Cooperative Learning (CL) based on student-centered educational philosophy has become one of the popularized models of instruction in classrooms. Cooperative Learning is one of the appropriate teaching techniques which leads to less anxiety and increases students' self awareness from their learning procedure (Powel & Enright, 1990).*

The present study was conducted to find out the effect of Teams Games Tournaments under cooperative learning vis-à-vis traditional learning method on 9th class students in relation to academic anxiety amongst them. The sample of the study comprised 96 students studying in 9th Class of JAT H.A.M.S. Sr. Sec. School, Rohtak. Data were collected with the help of standardized test of Academic Anxiety Scale for Children (AASC) developed by Dr. A.K. Singh and Dr. A. Sen Gupta (1984). In this study, students were divided into two groups i.e., experimental group and control group. Teams Games Tournament of Cooperative Learning method was applied to the experimental group and conventional teaching was applied to the control group. The intact sections were equated on intelligence and socio-economic status. For analysis and interpretation of data the investigator used't' test. The study concluded that Cooperative Learning strategy (TGT) was more superior to traditional method in reducing the academic anxiety significantly and reduction in students' score of anxiety which was evidenced in the reduction of their mean scores at the post test score.

Keywords: Teams games tournaments, academic anxiety, school students

Introduction

With the ever-increasing developments in science and technology, educational systems have witnessed rapid changes as well and even one can say that they have been the subject to change and development much more than any other organization/system. Cooperative Learning refers to a systematic instructional method in which students work together in small groups to accomplish shared learning goals. Johnson, & Johnson (1995) state that cooperative learning approach creates a supportive learning setting; it decreases

competitiveness and individualism but increases opportunities to actively construct or transform the knowledge among students. By working in groups, students have more opportunities to talk and share ideas so they can see how their peers think and create new ideas. In addition, discussing, creating, and thinking in a group, rather than in a whole class context, can provide a less anxiety-producing context. In such an atmosphere, students may feel more comfortable to try out new ideas. Therefore, a cooperative learning environment is believed to reduce anxiety and provide more opportunities for students to produce language (Kagan, 1994).

The world is becoming more and more competitive. Quality of performance has become the key factor for personal progress. Parents desire that their children climb the ladder of performance to as high level as possible. This desire for a high level of achievement puts a lot of pressure on students, teachers, schools, and, in general, the educational system itself. Teachers can use cooperative learning approach to stimulate students to acquire the knowledge, as well as create interpersonal and team skills. Cooperative Learning is one of the appropriate teaching techniques which leads to less anxiety and increased students' self awareness from their learning procedure (Powel & Enright, 1990).

Anxiety is peculiarly a human phenomenon and is considered to be a unique contribution of the 20th century to the mankind. So much so, the twentieth century is called "the age of anxiety". Anxiety is defined as a reaction that occurs against a special danger whose source is unknown. Anxiety in the classroom is considered a negative factor that lessens the learner's proficiency due to the fact that under the anxious situation, it's difficult to think clearly. According to MacIntyre (1995), anxiety can create a divided attention scenario for anxious students; they are focused on both the task at hand and their reactions to it. Anxiety in general refers to a state of apprehension or fearful uncertainty that dominates cognitive functioning and impose dramatic physiological disruptions in the human organism, caused by anticipated threat from a particular stimulus (Papalia & Olds, 1988). Anxiety is a state within an individual when she or he experiences uneasy thoughts or feelings about what may happen as a result of an application of a stimulus (Worldbook, 1992).

The concept of working in small groups seems to attract a lot of attention of teachers as it is believed to solve the problem of learning anxiety stated beforehand. The research findings suggest that cooperative learning enhances trust and mutual respect, declines anxiety, promotes meta-cognitive knowledge and encourages self-dignity and enthusiasm towards learning (Johnson & Johnson, 1989; Millis, 2010; Slavin & Karaweit, 1981; Ayoubi, 1998).

Academic anxiety in a way, is the most intimate experience to man. It enters into man's life with the first breath and ends with the last. It is the main cause of all mental disorders (Tomb & Hunte, 2004).The word academic anxiety comes from Latin word 'Anxients' which means experience of varying blends of uncertainly, agitation and threat. The desire to achieve high puts a lot of pressure on students which causes tension and examination anxiety.

On scanning Vedic literature it was found that the concept of examination anxiety as such did not exist in that period. The word 'Chinta' which according to some dictionaries stands for examination anxiety has not been used in the same sense as in modern usage. Some invariably use "Chinta" for "Vichara" (Thought) which is also one of the accepted meaning of "Chinta". According to Dutt (1974), "Academic anxiety constitutes particular unpleasant psychological and physiological reactions of an organism to extrinsic or/and intrinsic threat which amounts to disintegration or extinction of the organism". Webster (1956) defines examination anxiety as a painful uneasiness of mind over an impending or anticipated illness. According to American Psychiatric Association (1952), "examination anxiety is a danger signal felt and perceived by the conscious portion of the personality. It is produced by a threat from within the personality.....With or without stimulation from .....external situation."

Objectives

In the scheme of this study, student's academic anxiety being the variable its focus was on three objectives:

- To compare the academic anxiety of students adjusted on intelligence and socio-economic status to be taught Hindi Grammar through teams-games-tournaments under cooperative learning and through traditional method before the experimental treatment.
- To compare the academic anxiety of students adjusted on intelligence and socio-economic status taught Hindi Grammar through teams-games-tournaments under cooperative learning and through traditional method, after experimental treatment.
- To compare the mean gain academic anxiety scores of the experimental and control groups of students taught Hindi Grammar through teams-games-tournaments under cooperative learning and traditional method.

Hypotheses

In order to realize the objectives of the study, the following hypotheses were formulated for testing:

H_1 Before the experimental treatment the group of students to be taught Hindi Grammar through teams-games-tournaments under cooperative learning and the group to be taught through traditional method do not differ significantly on Academic anxiety.

H_2 At the end of the experimental treatment the group of students taught Hindi Grammar through teams-games-tournaments under cooperative learning method attained a significantly lower mean score on Academic anxiety than the group of students taught through the traditional method.

H_3 At the end of the experimental treatment the group of students taught Hindi Grammar through teams-games-tournaments under cooperative learning method attained a significantly lower mean gain scores on Academic – Anxiety than the group of students taught through the traditional method.

Method

Population

Students of 9th class studying in the schools affiliated to Haryana Board located in Rohtak District of Haryana constituted the target population of the study.

Sample

A sample of 96 students of ninth class selected from JAT H.A.M.S. High School affiliated to Haryana Board situated in urban area of Rohtak.

Variables

Independent variables:

- Cooperative learning method; and
- Traditional method

Dependent variables:

- Academic Anxiety

Procedure

In the present study, a pre-test-post-test control group quasi experimental design was employed in the form of intact sections of Class 9th of the same school. It involved two groups of students, i.e., experimental group and control group. The experimental group was taught through cooperative learning method and the control group was taught through conventional method.

The intact sections were equated on intelligence and socio-economic status. A figurative representation of the design is given in Table 1.

Table 1: *Student's description*

Groups	Pre-Test	Independent Variables	N	Post-Test
Experimental group	X_1	Cooperative Learning (TGT)	48	X_2
Control Group	Y_1	Traditional Method	48	Y_2

Since it was decided to find out how Teams Games Tournament technique of Cooperative Learning method will affect the student's Academic Anxiety and the

technique was applied to the experimental group. The design comprised three stages. The first stage involved pre-testing of all the students of two groups on intelligence, socio-economic status, and academic anxiety while learning Hindi Grammar. The second stage involved the experimental treatment, which consisted of teaching three units of 9th grade Hindi Grammar through cooperative learning methods (TGT) approach to experimental group and the conventional method was used for control group. In the third stage the students were post-tested on academic anxiety while learning Hindi Grammar. A schematic view of the phases of experiment is presented in Table 2.

Table 2: *Phases of the study*

Stages	**Treatments**	
	Experimental Group	**Control Group**
1. Pre-testing	Measurement of Student's 1. Intelligence 2. Socio-economic status 3. Academic Anxiety	Measurement of Student's 1. Intelligence 2. Socio-economic status 3 Academic Anxiety
2. Treatment	Teaching Hindi Grammar through Cooperative Learning	Teaching Hindi Grammar through Traditional method
3. Post-testing	Measurement of Student's 1. Academic Anxiety	Measurement of Student's 1. Academic Anxiety

Results

The investigators intended to study the effect of cooperative learning method of teaching on student's Academic Anxiety. For this purpose two groups were formed, i.e. the group of students taught through cooperative learning method formed the experimental group and the group taught by traditional method formed the control group.

In Table 3 t-value for difference in the pre-test mean academic anxiety scores of experimental and control group is presented. In the Table 4, t-value for post test mean academic anxiety scores is presented while Table 5 indicates the t-value for post test mean gain scores of academic anxiety. Mean gain academic anxiety scores of experimental group and control group before and after the experimental treatment are also shown graphically in bar diagrams.

Table 3 indicates t-value for difference in the pre-test mean academic anxiety scores of experimental group and control group.

Table 3: *t-value for difference in the pre-test mean academic anxiety scores of experimental group (TGT) and control group*

	Group	N	Mean	S.D.	't' value	Remarks
Pre Test	Experimental Group	48	15.56	1.66	1.169	Not Significant
	Control Group	48	15.16	1.65		

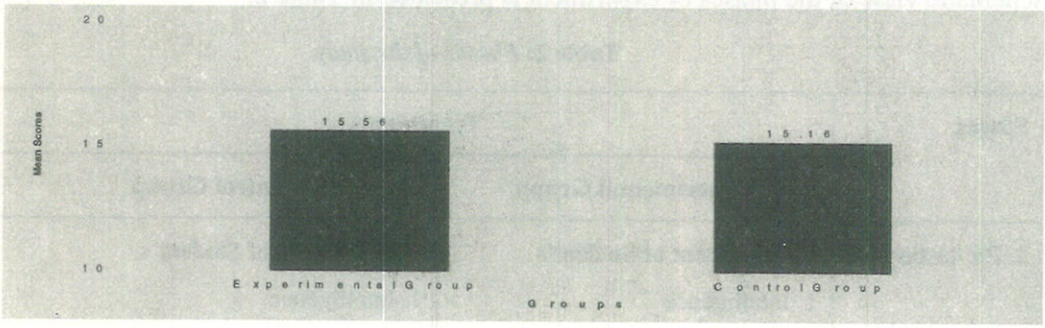

Figure 1: *Pre-test mean academic anxiety scores of experimental group and control group*

Table 3 shows the t-value of 1.169 for the difference in mean academic anxiety scores of experimental and control group before the experiment is not significant at any level. Hence, there is no significant difference in academic anxiety scores of experimental group and control group that is, both the groups are similar in respect to their academic anxiety scores.

Table 4: *t-value for difference in the post-test mean academic anxiety scores of experimental group (TGT) and control group*

	Group	N	Mean	S.D.	't' value	Remarks
Post-Test	Experimental group	48	10.83	1.41	9.776	Significant at 0.01 level
	Control group	48	13.93	1.68		

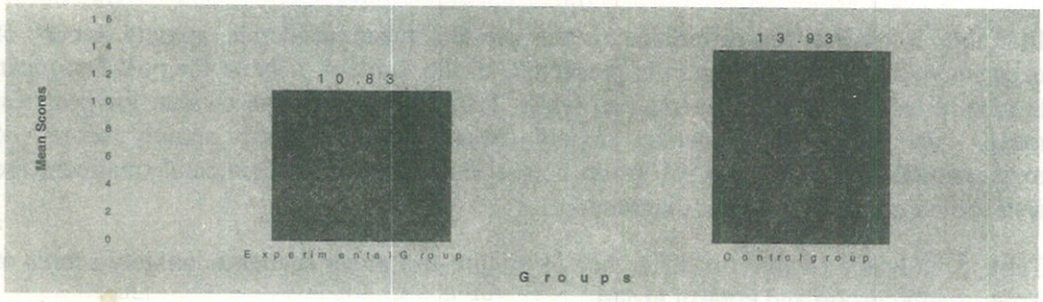

Figure 2: *Post-test mean academic anxiety scores of experimental group and control group*

Table 4 reveals that experimental group achieved lower mean score (M = 10.83 ± 1.41) than the control group on academic anxiety at post-test stage. It is evident that the 't' value 9.776 for difference in the mean scores of academic anxiety of students of experimental group and control group is significant at 0.01 levels. Thus the subjects exposed to cooperative learning method (TGT) achieved significantly lower mean level of academic anxiety in comparison to that in the traditional method. This implies that subjects exposed to cooperative learning method were found to be lower on academic anxiety test in comparison to those exposed to traditional method of teaching. In other words cooperative learning method is found to be more effective in reducing the academic anxiety of students.

On the basis of results obtained from analysis of data, Hypothesis (H_1) of the study stands **Retained**; that is "At the end of the experimental treatment the group of students taught Hindi Grammar through teams-games-tournaments under cooperative learning method attained a significantly lower mean score on Academic anxiety than the group of students taught through the traditional method".

Table 5: *t-value for difference in the post-test mean gain academic anxiety scores, of experimental group (TGT) and control group*

	Group	N	Mean gain	S.D.	't' value	Remarks
Post-Test	Control Group	48	–1.22	1.27	12.104	Significant at 0.01 level
	Experimental Group	48	–4.70	1.52		

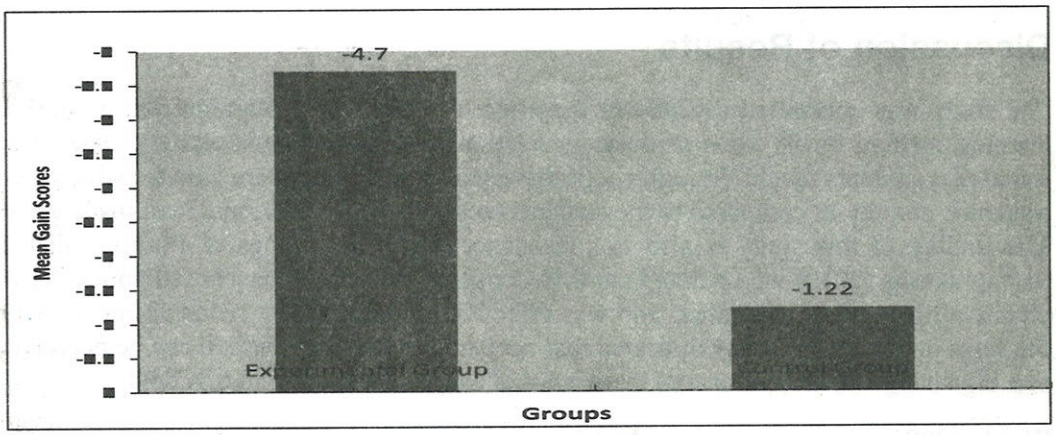

Figure 3: *Post-test mean gain academic anxiety scores of experimental group and control group*

Table 5 reveals that experimental group achieved lower mean gain score (M = – 4.70 ± – 1.52) than the control group on academic anxiety at post-test stage. It is evident that the 't' value 12.104 for difference in the mean gain scores of academic anxiety of students of experimental group and control group is significant at 0.01 levels. Thus the subjects

exposed to cooperative learning method (TGT) achieved significantly lower mean gain level of academic anxiety in comparison to that in the traditional method. This implies that subjects exposed to cooperative learning method were found to be lower on academic anxiety in comparison to those exposed to traditional method of teaching. In other words cooperative learning method is found to be more effective in reducing the academic anxiety of students.

On the basis of results obtained from analysis of data, Hypothesis (H_2) of the study stands retained; that is "At the end of the experimental treatment the group of students taught Hindi Grammar through teams-games-tournaments under cooperative learning method attained a significantly lower mean gain scores on Academic – Anxiety than the group of students taught through the traditional method."

Findings

1. No significant difference was found in academic anxiety scores of experimental group and control group at pre-test score that is, both the groups were found to be similar in respect to their academic anxiety scores.

2. It was found that the subjects exposed to cooperative learning method (TGT) achieved significantly lower mean score on academic anxiety in comparison to that in the traditional method.

3. It was found that the subjects exposed to cooperative learning method (TGT) achieved significantly lower mean gain score on academic anxiety in comparison to that in the traditional method.

Discussion of Results

The study was conducted to find out the effect of cooperative learning and traditional learning method on 9th class students in relation to their academic anxiety. The study found that students taught through cooperative learning method were able to reduce their academic anxiety as compared to the students taught through traditional learning method. The finding of this study is also in consonance with the findings of Pushpanjali and Satyaprakasha (2010) who pointed out that Cooperative Learning is a broad phrase for an effective approach to education and was effective in significantly reducing the anxiety. Findings of the study clearly indicated that cooperative learning method can be perceived as a big change for education and there is lot of scope for research in this field.

Worde (2003) also examined students' perspectives on foreign language anxiety. The researcher stated that a sense of community is a factor that believed to be helpful in reducing anxiety. In other words, they feel less anxious when working with partners and in small groups. So, working in cooperative learning environment is believed to reduce anxiety (Kagan, 1994). Nakahashi's Study (2007), which used structured cooperative learning activities to reduce language anxiety of first-year students in Akita University by providing a non-threatening, supportive environment to language learning

development. The outcomes showed that while the students' learning anxiety was lowered, their language learning achievement scores improved significantly. Gokce & Derin (2007) investigated the effects of cooperative learning in form of peer feedback, on the writing anxiety of Turkish prospective teachers of English. Results of the quantitative data showed that students in the cooperative learning group experienced significantly less writing anxiety than the students in the teacher-centered group. This indicates that students in the cooperative learning group showed a significantly higher decrease in writing anxiety level than their colleagues in the teacher-centered group which support the result of the study.

Conclusion

The results and conclusions reached during the course of this study clearly highlight the effectiveness of cooperative learning in raising the students' academic achievements. The results also showed the effectiveness of cooperative learning on reducing the academic anxiety. The purpose of the present study was also to see the effect of cooperative learning method and traditional learning method on academic anxiety of the students. It was found that students taught through cooperative learning method were able to reduce their academic anxiety as compared to the students taught through traditional learning method. It seems when friendliness was established, students were motivated to learn and were more confident to ask questions from one another for better understanding of the tasks being learnt. As a final word, the study indicated that TGT (Teams Games Tournaments) was more effective instructional paradigm as compared to the traditional method of teaching in reducing academic anxiety of students.

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Folklore Based Model of Teaching on Scientific Creativity

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Abstract: *Creativity is the ability of an individual to respond to the need for creation, self-expression, self-realisation and to solve problems thereby improving the quality of life. It is essentially an ability to bring something new into existence purposefully though the person may or may not be conscious of its process, nature and components. The present study was examined the effectiveness of Folklore Based Model on Scientific Creativity among students of Standard VIII. The experimental method was adopted for the study. The study was conducted among sixty students of Standard VIII. Thirty students were included in the experimental group and the rest thirty in the control group. Pre-test, post-test, non-equivalent design was employed for the study. The experimental group was treated with the Folklore Based Model of teaching while the control group was treated with the Activity method. Test of significant difference between the means (t = 5.20) showed that there is significant difference between the mean scores of experimental and control groups and the experimental group was found to be superior to control group. Thus it is found that Folklore Based Model of teaching is effective in enhancing Scientific Creativity.*

Keywords: Model of teaching, folklore, scientific creativity

Introduction

"An ignited mind is the most powerful resource on earth, above the earth and under the earth." (Kalam, 2005)

Education has a fundamental role to play in personal and social development. It can be seen as an instrument that transforms situation of poverty, exclusion, ignorance, oppression and war. The children and youth of our times, who will take over from today's adults, need to be equipped with knowledge to usher in a better future. The importance of education is emphasized through these words of US President Obama, when he said, "In an economy were knowledge is the most valuable commodity a person and a country have to offer, the best jobs will go to the best educated-whether they live in the United States or India or China". In the World, science and technology are growing very quickly but scientific and technologic development requires the development of science education. Science Education provides good standards for people and leads to cultural development.

Science enables a man to comprehend, control and predict his environment. India has the third largest scientific and technical manpower in the world. Since science and technology has led to the socio-economic development of the country, government has

given great importance to science education. Unique potentialities of the child should be preserved and enriched, by science education. According to Saxena, science is a process containing the creative components affecting each step of life, in addition to being a product. Thus creativity is an important aspect of scientific skill.

Engaging learners in the excitement of science, helping them discover the value of evidence-based reasoning and higher-order cognitive skills, and teaching them to become creative problem solvers have long been goals of science education reformers. But the means to achieve these goals, especially methods to promote creative thinking in scientific problem solving, have not become widely known or used.

Creativity is the ability of an individual to respond to the need for creation, self-expression, self-realisation and to solve problems thereby improving the quality of life. It is essentially an ability to bring something new into existence purposefully though the person may or may not be conscious of its process, nature and components (Torrance, 1987). A person may possess it as a natural endowment or nurture it as a result of various environmentally stimulating impacts that might have consciously or unconsciously affected his/her growth of personality. Whatever may be the reason behind shaping of a creative personality, it is beyond any doubt that any society, in order to survive, upgrade and enrich its existence must be lucky enough to have such gifted personalities in various fields in large numbers.

Going by the notion that creativity is an inborn capacity or potential which flourishes under stimulating and nurturing conditions, it is very important that creative abilities are identified early in life and creative individuals provided with viable environment to blossom into productive and contributing human beings. It is also very important to restrict the suppression of creative potential because thwarted creative ability does not get extinguished. On the other hand, it may be expressed in negative forms and end up as revenge against the society. This needs to be avoided. Before it is too late for us to realise our folly and repent over the loss of precious creative talent in the society, determined efforts must be made for the identification and nurturance of creative talent. This may not be possible unless widespread and comprehensive researches are carried out which would enable us to arrive at a thorough understanding of the many splendored phenomenon which creativity is, as well as the strategies through which it can be nurtured.

Good education, proper care and provision of opportunities for creative expression inspire, stimulate and sharpen the creative mind, and it is in this sphere, that parents, society and teachers make a significant contribution. They are required to help the children in nourishing and utilizing their creative abilities to the utmost. The educational process, therefore, should be aimed at developing creative abilities among children. This can be achieved by acquainting the teachers and parents with the real meaning of the creative process and the ways and means of developing and nurturing creativity.

The best definition of creativity related to the science was done by Torrance; the definition is that, "The creativity is recognizing the gaps in the problem or the

information, creating ideas or hypotheses, testing and developing these hypotheses, and transmitting the data" (Torrance, 1995 in Dass, 2004).

Scientific Creativity (creativity in science) can be considered to help achieve new and original steps in performing the targets of science. Moravcsik (1981:222) defined the scientific creativity by saying, "it can explain itself in comprehending the new ideas and concepts added to scientific knowledge, in formulating new theories in science, finding new experiments presenting the natural laws, in recognizing new regulatory properties of scientific research and the scientific group, in giving the scientific activity plans and projects originality, and many other areas".

Creative thinking is necessary to search for solutions to all kinds of problems that are encountered in daily life and to make new products. According to scientific studies, creativity takes a complementary role in many scientific processes. The individuals who use creativity can make their science education functional, and therefore, the scientific information can be the basis for producing a valuable product instead of just amassing information . Therefore, for students to gain the creative thinking skills that they will need as adults, at each stage of their education, beginning in elementary school, must be one of the most important purposes of science education (Koray, 2003).

Science educators recognized the importance of creativity in science education, and started to work on methods and techniques which can improve creativity (Hu & Adey, 2002). However there are not many studies presenting creativity improvement and supporting methods for science students (Liang, 2002). And the studies have generally used cognitive aspects to determine the scientific creativity of students. For example, certain studies have used finding the problem and formulating the hypotheses skills as criteria to evaluate the scientific creativity (Hoover, 1992; Hoover & Feldhusen, 1990). Finding the problem and formulating the hypotheses are important in improving the scientific creativity, and at the same time, they are the components of Science Process Skill. Therefore, it is believed that the scientific creativity of individuals who use SPS was better (Liang, 2002).

Folklore is the body of expressive culture, including folktales, storytelling and other literature, such as myths, legends, oral history, proverbs, jokes etc. It also includes the popular beliefs, dance, music, customs, and so forth within a particular population comprising the traditions (including oral traditions) of that culture, sub-culture, or group. The academic and usually ethnographic study of folklore is sometimes called folkloristic.

Folklore is relatively a new discipline, more so in the data-rich developing countries, such as India. It emerged as a new field of learning in the beginning of the nineteenth century. Although studies covering oral traditions of the people of various cultures of the world did appear under different names in the past, the present scientific term 'Folklore', is of English derivation and was coined by William John Thoms in a letter published by the London Journal 'Athenaeum' in 1846.

One must be cautious in attributing any special significance to the date when William John Thoms coined the term 'folklore', for the materials of folklore had been studied with vigour long before Thoms coined this term. An obvious example is the work ('Children's and Household Tales') in 1812 of the Grimm brothers, who are the real founders of the science of folklore (if not the term) and whose remarkable work can hardly be ignored by any folklorist devoted to tracing the history of the growth of folklore studies and its impact on the present theoretical advancement.

Both Wilhelm and Grimm were primarily interested in the investigation of German language. Their interest in folklore materials, as can be evidenced by their earlier works, was subordinate to the investigations they were carrying out in the field of Germanic languages.

Creativity can be fostered within the individuals by providing enriched academic environment. Education can be pivotal in promoting creative performances related to the writing skill. The stress on examinations, the over-crowded syllabus, the method of teaching and lack of proper material amenities tend to make education a burden rather than a joyous experience for the young mind (Secondary Education Commission, 1952-53). Naturally it does very little to exploit the value potential of individuals.

The assistance of folklore helps to create the enrichment in the academic environment through stories, songs etc. Moreover the learner gets an opportunity to come close to his society, culture, rituals and traditions. In this era where human values are not valued, such an opportunity is needed which has to be provided through education. Keeping this aspect in mind, the investigator attempted for research work in the present study.

Folklore is an area which is discarded as traditional now-a-days. So the investigator found it appropriate to incorporate some folklore elements and to develop a model of teaching to develop the Scientific Creativity among students. This point of view brings out the significance of the present study.

Objectives

The objectives of the present study are as follows:

- To find out the effectiveness of the Folklore Based Model prepared by the investigator.
- To compare the effectiveness of Folklore Based Model with that of the Activity method in enhancing Scientific Creativity among students of Standard VIII.

Hypothesis

1. The Scientific Creativity of the students taught through Folklore Based Model will be significantly higher than that of those taught through the Activity Oriented method of teaching.

Method

The experimental method was adopted for the study. The study was conducted among sixty students of Standard VIII. Thirty students were included in the experimental group and the rest thirty in the control group. Pre-test, post-test, non-equivalent design was employed for the study. The experimental group was treated with the Folklore Based Model of teaching while the control group was treated with the Activity method. Then at the end of the treatment, a post-test was administered to determine the development of Scientific Creativity among students of Standard VIII.

The following tools and materials were used for the study.

- Folklore Based lesson transcripts prepared by the investigator.
- Scientific Creativity test prepared and standardised by the investigator.
- Lesson Transcripts based on Activity Oriented Method.

The data collected were tabulated and analysed statistically using appropriate statistical techniques like Mean, Standard Deviation, and Analysis of Co-variance.

Analysis and Results

Comparison of Effectiveness of Folklore Based Model of Teaching over Activity Method in Enhancing Scientific Creativity

To determine the effect of instructions based on Folklore Based Model, the pre-test and post-test scores of experimental and control groups were subjected to the statistical analysis of co-variance.

Before proceeding to the ANCOVA, Analysis of Variance (ANOVA) was done. Total sum of squares, mean square variance and F-ratio of the pre-test and post-test scores of the experimental and control group were computed. The summary of ANOVA of pre-test (X) and post-test (Y) score of pupils in experimental and control group taken is given in the table below.

Table 1: *Summary of Analysis of Variance of Pre- Test (X) and Post- Test (Y) Scores of Secondary School Students in Experimental and Control Groups*

Sources of variance	df	SSx	SSy	MS_X	MS_Y	F
Among group	1	0.04	395.30	0.04	395	$F_X = 0.01$
Within group	58	253.78	875.90	4.38	15.00	$F_Y = 26.17$
Total	**59**	**253.81**	**1271.20**	**4.42**	**410.00**	

From the table F for df (1, 58)

F at 0.05 level = 4.00
F at 0.01 level = 7.08

The obtained Fx and Fy ratio were tested for significance. The calculated value of Fx is 0.01. The table values of F – ratio for df (1/ 58) are 4.00 at 0.05 level and 7.08 at 0.01 level. Hence Fx is not significant at 0.05 level.

When the F-test is applied to the initial score, Fx falls less than the table value and hence there is no significant difference between the pre-test scores of experimental and control groups.

The obtained value of Fy is 26.17. It is significant at 0.01 level. Hence it can be tentatively concluded that there is significant difference between the post-test scores of both groups.

The final Y scores were corrected for difference in initial X scores. For that SSy has been adjusted for any variability in Y contributed by X. The adjusted sum of squares for Y that is SSyx was computed and the F ratio Fyx was calculated. The summary of analysis of co variance of pre-test and post-test scores of Secondary School Students in experimental and control group is given in the Table 2.

Table 2: *Summary of Analysis of Covariance of Pre-Test and Post-Test Scores of Secondary School Students in Experimental and Control Groups*

Source of variance	df	SSx	SSy	SSxy	SSyx	MSyx	SDyx	F_{YX}
Among group	1	0.04	395.30	3.85	398.16	398.16	3.84	27.06
Within groups	57	253.78	875.90	123.10	838.83	14.72		
Total	**58**	**253.81**	**1271.20**	**126.95**	**1236.98**			

From table F for df (1, 57),

F at 0.05 level = 4.00
F at 0.01 level = 7.08

The obtained Fyx ratio was tested for significance. Since the table value of F for df (1,57) is 7.08 at 0.01 level, the obtained Fyx ratio is greater than the table value (Fyx = 27.06).Hence it is significant at .01 level. It is clear from the significant Fyx ratio that the two final mean which depend upon the experimental and control variables differ significantly after they have been adjusted for initial difference on X.

The adjusted means of post-test scores (y means) of pupils in the experimental and control groups were computed. The difference between the adjusted Y means was tested for significance. The data for adjusted means of post-test of pupils in experimental and control group are given in the Table 3.

Table 3: *Data for Adjusted Means of Post-Test Scores of in Experimental and Control Groups*

Groups	N	M_x	M_y	M_{XY}	S.Ed	t value
Experimental	30	3.90	18.2	18.23		
Control	30	3.85	13.1	13.07	0.99	5.20
General means		3.88	15.65			

From the table df (1, 57)

t at 0.05 level = 2.01
t at 0.01 level = 2.68

Adjusted Y means for post-test scores were tested for significance of df 1/57. The calculated 't' value is 5.20 is significant at 0.01 level ($t = 5.20$, $p < 0.01$). The significant difference between adjusted 'y' means indicates that the pupils of experimental and control group differ significantly in their Scientific Creativity in the post test. It may therefore be interpreted that the students taught through Folklore Based Model have better Scientific Creativity than those taught by Activity oriented method.

From the analysis of total scores of pupils in experimental and control groups by using the statistical technique of analysis of co-variance, it became apparent that Folklore Based Model of teaching is more effective in enhancing Scientific Creativity than the Activity method.

Major Findings

Major findings from the analysis of test scores are given below:

The analysis of variance of pre-test and post-test scores of students in experimental and control groups showed that there was no significant difference between the means of pre-test scores of the two groups (Fx = 0.01). On the other hand there was a significant difference between the means of post-test scores of the two groups (Fy = 26.71) i.e., the experimental group was found to be superior to the control group in the post-test.

The analysis of co-variance of pre-test and post-test scores of students in experimental and control groups showed that there is significant difference between the means of post-test scores of two groups (Fyx = 27.06) i.e. , the experimental group was found to be superior to the control group.

When the adjusted means of post-test scores of the students in the experimental and control groups were compared, the difference between them was found to be statistically significant. Test of significant difference between the means (t = 5.20) showed that there is significant difference between the mean scores of experimental and control groups and the experimental group was found to be superior to control group.

Thus it is found that Folklore Based Model of teaching is effective in enhancing Scientific Creativity.

Educational Implications

1. The curriculum should reflect what is expected from the creative children in terms of fluency, flexibility, originality, divergent thinking, inventiveness, elaboration etc.
2. The energy in adolescents should be handled with care. The energy in them shall be used for creative and productive work. Thereby sublimation of negative thoughts and actions takes place. The creative and novel ideas of adolescents are a contribution to the society and nation.
3. The learning approach in Folklore Based Model of Teaching is generally activity-based which enhances the qualities like co-operation, self-confidence, leadership qualities, etc.
4. The activities in Folklore Based Model of teaching are mainly open-ended activities which nurtures creativity in pupils.

Conclusion

The purpose of education is self-realisation of every individual. This self-realisation is aspired and achieved by children in their academic life by developing competencies in their particular field of study. This study reveals that Scientific Creativity can be developed using Folklore Based Model of teaching.

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Effectiveness of Cooperative Learning Method on the Lesson Planning Abilities of Pre-Service Teachers

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Abstract: *The Present study aimed to study the effectiveness of cooperative learning method on the Lesson Planning Abilities (LPA) of pre-service teachers. Quasi-experimental research design was employed for the present study. A Lesson Plan Rubric (LPR) was developed by the researcher to evaluate the lesson plans that the pupil-teachers prepared as a data collection tool. The Lesson Plan Rubric (LPR) consisted of 9 dimensions that are specifically related with the Lesson Planning Abilities (LPA). For the purpose of experiment, 17 students (12 male and 5 female) were chosen for the control group and 17 students (13 male and 4 female) were randomly selected to form the experimental. The lesson plans that students had prepared were evaluated by two evaluators including the researcher. Obtained data were analyzed with the help of Mean, Standard Deviation (SD) and 't'-test. The study clearly shows that cooperative learning develops in pupil-teachers all those necessary knowledge, skills and behaviours that are essential to make lesson plans.*

Keywords: Cooperative learning, pre-school teachers, lesson planning

Introduction

The progress of a country depends upon the quality of its teachers and for this reason teaching is the noblest among all professions. The quality of teachers depends upon the quality of pre-service teacher education programs. Preparation for practice teaching plays an important role in the pre-service teacher education program. In the process of teacher preparation, lesson planning plays an important role. Lesson planning helps the teacher to become confident and systematic. It makes the teacher more competent in dealing with various difficulties and problems of students in the class. But due to the several factors, proper attention is not paid on the development of lesson planning abilities amongst pre-service teachers. Pre-service teachers work individually at the time of lesson planning. Vygotsky (1978) has reported that social experience can shape the cognitive processes of individuals in a learning situation. Vygotsky believes that the construction of knowledge and the transformation of various points of view into personal thinking results from cooperative efforts to learn, understand and solve problems. Zimmerman (1990) argues that the learning process should be organized in such a way that learners can take responsibility for their own learning processes.

Cooperation is working together to accomplish shared goals. Within cooperative activities individuals seek outcomes that are beneficial to themselves and beneficial to all other group members. Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each others' learning. Johnson and Johnson (1999) stated that learning environments can be divided into three categories. The first one is the "Competitive Learning" environment in which while some students win and others lose and the students compete with one another to determine who "the best" is. Second one is the "Individual Learning' environment in which the students study on their own to realize their goals without being interested in what others do. The third one is the "Cooperative Learning" environment in which the members of the group either win or lose together and which requires to study together in the framework of mutual goals. The most important feature of the cooperative learning is that the individuals study in small groups by helping each other to learn to achieve a mutual goal.

The main aim of lesson planning is to guide the teacher who manages the teaching-learning process. Good lesson planning depends upon some specific abilities of the teachers. The important lesson planning abilities are: (1) Determining Instructional Objectives, (2). Writing Objectives in Behavioural Terms, (3) Determining the Subject Matter to Achieve the Objectives, (4) Identifying Appropriate Previous Knowledge, (5) Selection of Audio-Visual Aids, (6) Determining the Teaching Methods and Techniques about the Subject Matter, (7) Introductory Activities, (8) Writing Student-Teacher Interaction for Presentation (Instructional Procedure) and (9) Evaluating the Changes of Behaviour that are anticipated in Children. Figure-1 shows the schematic diagram of the lesson planning abilities of the pupil-teachers.

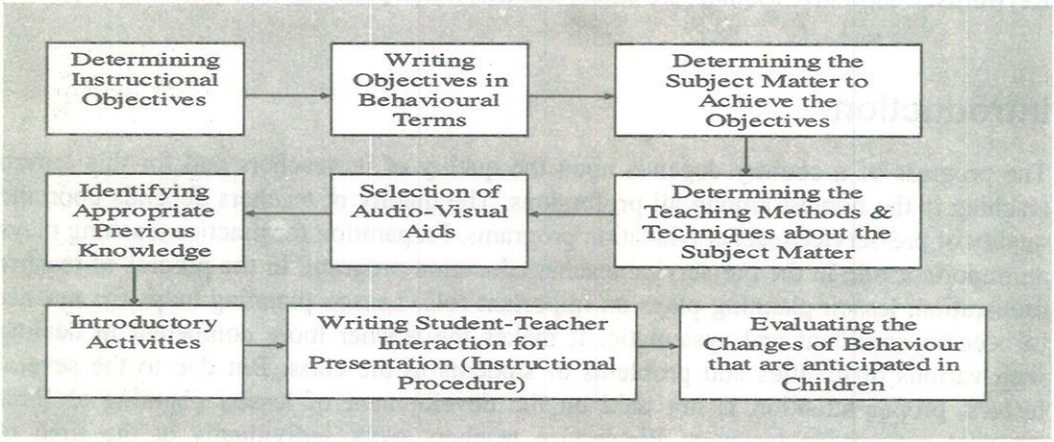

Figure 1: *Schematic Diagram Showing the Lesson Planning Abilities of the Pre-Service Teachers*

It is important for a teacher to prepare a good lesson plan and to present lesson to students according to this lesson plan. This research has been required with the thought that pre-service teachers may be more successful by teaching the significant ways of making a good lesson plan to each other with the cooperative learning.

Objectives

The objectives of the present study were as follows:

- To study the effects of traditional learning method on lesson planning abilities of pre-service teachers.
- To study the effects of cooperative learning method on lesson planning abilities of pre-service teachers.
- To compare the lesson planning abilities of experimental group pre-service teachers to whom a cooperative learning method is applied and control group pre-service teachers to whom a traditional learning method is applied.

Hypotheses

To attain the objectives of the present study, the following null hypotheses were formulated:

1. There is no significant difference between the pre-test and post-test marks of the lesson planning abilities of control group pre-service teachers to whom a traditional learning method is applied.
2. There is no significant difference between the pre-test and post-test marks of the lesson planning abilities of experimental group pre-service teachers to whom a cooperative learning method is applied.
3. There is no significant difference between the pre-test marks of the lesson planning abilities of experimental group pre-service teachers to whom a cooperative learning method is applied and control group pre-service teachers to whom a traditional learning method is applied.
4. There is no significant difference between the post-test marks of the lesson planning abilities of experimental group pre-service teachers to whom a cooperative learning method is applied and control group pre-service teachers to whom a traditional learning method is applied.

Method

The methods, that was adopted to carry out the present study was as follows:

Research methodology

Quasi-experimental design was used in the present study. In this study, an experimental group and a control group were formed and the pre-test and post-test method of Champbell and Julion (1966) was used.

Population and sample

The research was conducted on the pupil-teachers of the pre-service teacher education program (B.Ed.) of Maulana Azad National Urdu University, College of Teacher

Education, Bhopal. The program aims at training teachers for secondary level schools. The present study was conducted on 34 pre-service teachers. The participants in the study were 25 males (73.52 %) and 9 females (26.47%). For the sample of the research, 17 students (12 male and 5 female) were chosen to form the control group and 17 students (13 male and 4 female) were randomly selected to form the experimental. The groups were formed heterogeneous by the researcher.

Variables in the study

In the present study, dependent variable was the lesson planning abilities of pre-service teachers and independent variable was the method of learning i.e. traditional learning method and cooperative learning method.

Tools and techniques

A Lesson Plan Rubric (LPR) was developed by the researcher to evaluate the lesson plans that the pupil-teachers prepared as a data collection tool. The Lesson Plan Rubric (LPR) consisted of 9 dimensions that are specifically related with the Lesson Planning Abilities (LPA). These Lesson Planning Abilities (LPA) were:

1. Determining Instructional Objectives (DIO)
2. Writing Objectives in Behavioural Terms (WOBT)
3. Determining the Subject Matter to Achieve the Objectives (DSM)
4. Identifying Appropriate Previous Knowledge (IAPK)
5. Selection of Audio-Visual Aids (SAVA)
6. Determining the Teaching Methods and Techniques about the Subject Matter (DTMT)
7. Introductory Activities (IA)
8. Writing Student-Teacher Interaction for Presentation (Instructional Procedure) (WSTI)
9. Evaluating the Changes of Behaviour that are anticipated in Children (ECB)

Procedure of data collection and analysis

The lesson plans that students had prepared were evaluated by two evaluators including the researcher. The evaluators made evaluations individually. The scorers weren't informed which group was the control group and which one was the experimental group during the application of the program. The score range of each lesson planning ability was '0' to '10'. The minimum '0' mark allotted to the pupil-teacher if the task was not done and a maximum '10' marks was allotted to the pupil if the task was perfectly done. Obtained data were analyzed with the help of Mean, Standard Deviation (SD) and 't'-test. The scoring criteria were as follows:

S. No.	Performance	Marks
1.	Task not done	0
2.	No evidence of success	2
3.	There is some evidence of success	4
4.	Improving	6
5.	Good	8
6.	Perfect	10

Results

To study the effects of cooperative learning method on the lesson planning abilities of pre-service teachers, 't' tests were computed. The results of this analysis are reported under the following tables.

A) Effects of Traditional Learning Method on Lesson Planning Abilities of Control Group Pre-Service Teachers

To study the effects of traditional learning method on lesson planning abilities of control group pre-service teachers, means, standard deviations and 't' values were computed. The results of this analysis are reported in Table 1.

Table 1: *Means, Standard Deviations and 't' Values for Pre and Post-test Scores on Lesson Planning Abilities of Control Group (Traditional Learning Method) Pre-Service Teachers*

Lesson Planning Abilities	Experimental Group (Pre-test)			Control Group (Post-test)			't' Value
	N	Mean	S.D.	N	Mean	S.D.	
Determining Instructional Objectives	17	0.82	1.01	17	3.05	2.01	4.08**
Writing Objectives in Behavioural Terms	17	1.05	1.24	17	2.94	2.01	3.27**
Determining the Subject Matter to Achieve the Objectives	17	0.58	0.93	17	3.29	2.22	4.61**
Identifying Appropriate Previous Knowledge	17	0.23	0.66	17	2.00	1.87	3.66**
Selection of Audio-Video Aids	17	0.94	1.24	17	4.47	1.94	6.30**
Determining the Teaching Methods and Techniques about the Subject Matter	17	0.47	0.87	17	3.05	2.24	4.42**
Introductory Activities	17	0.82	1.23	17	2.70	1.86	3.47**
Writing Student-Teacher Interaction for Presentation (Instructional Procedure)	17	1.17	1.42	17	2.58	1.83	2.50**
Evaluating the Changes of Behaviour that are Anticipated in Children	17	0.94	1.24	17	3.64	2.26	4.31**

** Significant at 0.01 level of significance

From the Table 1, it is found that according to the results of the 't' test, carried out between the pre-test and post-test marks of the control group to whom the traditional learning method was applied, it was observed that there is a significant difference in Determining Instructional Objectives (t = 4.08), Writing Objectives in Behavioural Terms (t = 3.27), Determining the Subject Matter to Achieve the Objectives (t = 4.61), Identifying Appropriate Previous Knowledge (t = 3.66), Selection of Audio-Video Aids (t = 6.30), Determining the Teaching Methods and Techniques about the Subject Matter (t = 4.42), Introductory Activities (t = 3.47), Writing Student-Teacher Interaction for Presentation (Instructional Procedure) (t = 2.50) and Evaluating the Changes of Behaviour that are Anticipated in Children (t = 4.31). Therefore hypothesis 1 has been rejected. It can be concluded that traditional learning method improves the ability of the pre-service teachers to plan lessons.

B) Effects of Cooperative Learning Method on Lesson Planning Abilities of Experimental Group Pre-Service Teachers

To study the effects of cooperative learning method on lesson planning abilities of experimental group pre-service teachers, means, standard deviations and 't' values were computed. The results of this analysis are reported in Table 2.

Table 2: *Means, Standard Deviations and 't' Values for Pre and Post-test Scores on Lesson Planning Abilities of Experimental Group (Cooperative Learning Method) Pre-Service Teachers*

Lesson Planning Abilities	Experimental Group (Pre-test)			Experimental Group (Post-test)			't' Value
	N	Mean	S.D.	N	Mean	S.D.	
Determining Instructional Objectives	17	0.94	1.24	17	6.70	2.22	9.30**
Writing Objectives in Behavioural Terms	17	0.94	1.02	17	7.29	2.54	9.54**
Determining the Subject Matter to Achieve the Objectives	17	0.70	0.98	17	6.82	2.24	10.29**
Identifying Appropriate Previous Knowledge	17	0.11	0.48	17	7.88	2.39	13.10**
Selection of Audio-Video Aids	17	1.17	1.42	17	7.29	2.54	8.65**
Determining the Teaching Methods and Techniques about the Subject Matter	17	0.70	1.21	17	7.05	2.65	8.96**
Introductory Activities	17	0.58	0.93	17	7.52	2.06	12.61**
Writing Student-Teacher Interaction for Presentation (Instructional Procedure)	17	1.05	1.43	17	7.41	2.42	9.29**
Evaluating the Changes of Behaviour that are Anticipated in Children	17	0.82	1.42	17	7.88	2.59	9.83**

** Significant at 0.01 level of significance

From the Table 2, it is found that according to the results of the 't' test, carried out between the pre-test and post-test marks of the experimental group pre-service teachers to whom the traditional learning method was applied, it was observed that there is a significant difference in Determining Instructional Objectives (t = 9.30), Writing Objectives in Behavioural Terms (t = 9.54), Determining the Subject Matter to Achieve the Objectives (t = 10.29), Identifying Appropriate Previous Knowledge (t = 13.10), Selection of Audio-Video Aids (t = 8.65), Determining the Teaching Methods and Techniques about the Subject Matter (t = 8.96), Introductory Activities (t = 12.61), Writing Student-Teacher Interaction for Presentation (Instructional Procedure) (t = 9.29) and Evaluating the Changes of Behaviour that are Anticipated in Children (t = 9.83). Therefore hypothesis 2 has been rejected. It can be concluded that cooperative learning method improves the ability of the pre-service teachers to plan lessons. In this section, it will be more appropriate to make a comparison between control group and experimental group.

C) Comparison of Pre-test Scores on the Lesson Planning Abilities of Control Group and Experimental Group Pre-Service Teachers

To compare the pre-test scores on the lesson planning abilities of experimental group pre-service teachers to whom a cooperative learning method is applied and control group pre-service teachers to whom a traditional learning method is applied, means, standard deviations and 't' values were computed on post-test scores. The results of this analysis are reported in Table 3.

Table 3: *Means, Standard Deviations and 't' Values for Pre-test Scores on Lesson Planning Abilities of Control Group and Experimental Group Pre-Service Teachers*

Lesson Planning Abilities	Control Group (Pre-test)			Experimental Group (Pre-test)			't' Value
	N	Mean	S.D.	N	Mean	S.D.	
Determining Instructional Objectives	17	0.82	1.01	17	0.94	1.24	0.30
Writing Objectives in Behavioural Terms	17	1.05	1.24	17	0.94	1.02	0.30
Determining the Subject Matter to Achieve the Objectives	17	0.58	0.93	17	0.70	0.98	0.35
Identifying Appropriate Previous Knowledge	17	0.23	0.66	17	0.11	0.48	0.59
Selection of Audio-Video Aids	17	0.94	1.24	17	1.17	1.42	0.51
Determining the Teaching Methods and Techniques about the Subject Matter	17	0.47	0.87	17	0.70	1.21	0.64
Introductory Activities	17	0.82	1.23	17	0.70	0.98	0.30
Writing Student-teacher Interaction for Presentation (Instructional Procedure)	17	1.17	1.42	17	1.05	1.43	0.24
Evaluating the Changes of Behaviour that are Anticipated in Children	17	0.94	1.24	17	0.82	1.42	0.25

From the Table 3, it is found that according to the results of the 't' test, carried out between the pre-test marks of the control group and experimental group pre-service teachers before the application of cooperative learning method, it was observed that there is no significant difference in Determining Instructional Objectives, Writing Objectives in Behavioural Terms, Determining the Subject Matter to Achieve the Objectives, Identifying Appropriate Previous Knowledge, Selection of Audio-Video Aids, Determining the Teaching Methods and Techniques about the Subject Matter, Introductory Activities, Writing Student-Teacher Interaction for Presentation (Instructional Procedure) and Evaluating the Changes of Behaviour that are Anticipated in Children. Therefore hypothesis 3 has been accepted for every sub-component of lesson planning. It can be said that the lesson planning abilities of the control group and experimental group pupil-teachers were similar before starting the application of the program.

D) Comparison of Post-test Scores on the Lesson Planning Abilities of Control Group and Experimental Group Pre-Service Teachers

To compare the lesson planning abilities of experimental group pre-service teachers to whom a cooperative learning method is applied and control group pre-service teachers to whom a traditional learning method is applied, means, standard deviations and 't' values were computed on post-test scores. The results of this analysis are reported in Table 4.

Table 4: *Means, Standard Deviations and 't' Values for Post-test Scores on Lesson Planning Abilities of Control Group and Experimental Group Pre-Service Teachers*

Lesson Planning Abilities	Control Group (Post-test)			Experimental Group (Post-test)			't' Value
	N	Mean	S.D.	N	Mean	S.D.	
Determining Instructional Objectives	17	3.05	2.01	17	7.17	2.00	5.97**
Writing Objectives in Behavioural Terms	17	2.94	2.01	17	7.88	1.79	7.54**
Determining the Subject Matter to Achieve the Objectives	17	3.29	2.22	17	7.29	1.99	5.51**
Identifying Appropriate Previous Knowledge	17	2.00	1.87	17	8.23	1.39	11.02**
Selection of Audio-Video Aids	17	4.47	1.94	17	7.76	1.71	5.24**
Determining the Teaching Methods and Techniques about the Subject Matter	17	3.05	2.24	17	7.41	1.97	6.00**
Introductory Activities	17	2.70	1.86	17	8.00	1.58	8.93**
Writing Student-teacher Interaction for Presentation (Instructional Procedure)	17	2.58	1.83	17	7.88	1.49	9.21**
Evaluating the Changes of Behaviour that are Anticipated in Children	17	3.64	2.26	17	8.35	1.61	6.97**

** Significant at 0.01 level of significance

From the Table 3, it is found that according to the results of the 't' test, carried out between the post-test scores of the control group and experimental group pre-service teachers, it was observed that there is a significant difference in Determining Instructional Objectives (t = 5.97), Writing Objectives in Behavioural Terms (t = 7.54), Determining the Subject Matter to Achieve the Objectives (t = 5.51), Identifying Appropriate Previous Knowledge (t = 11.02), Selection of Audio-Video Aids (t = 5.24), Determining the Teaching Methods and Techniques about the Subject Matter (t = 6.00), Introductory Activities (t = 8.93), Writing Student-Teacher Interaction for Presentation (Instructional Procedure) (t = 9.21) and Evaluating the Changes of Behaviour that are Anticipated in Children (t = 6.97). Therefore hypothesis 4 has been rejected. It can be concluded that cooperative learning method improves the ability of the pre-service teachers to plan lessons.

The above result shows that in comparison to traditional learning method cooperative learning method has improved the lesson planning abilities of the pre-service teachers. The mean scores of every component of lesson planning (Abilities of Lesson Planning) scored by control group and experimental group pupil-teachers is shown in Figure 2. From Figure 2, it is clear that in every component of lesson planning, there was more increase in the arithmetic mean of the experimental group than the arithmetic mean of the control group.

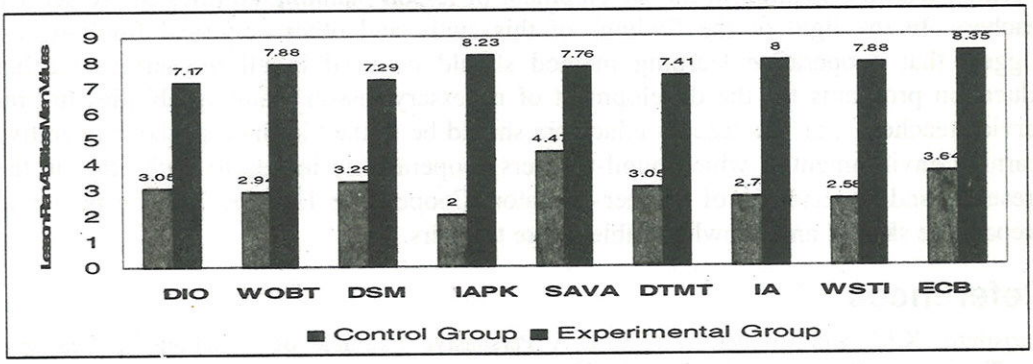

Figure 2: *Lesson Planning Abilities Mean Values of Control Group and Experimental Group Pre-Service Teachers*

Note:

DIO = Determining Instructional Objectives
WOBT = Writing Objectives in Behavioural Terms
DSM = Determining the Subject Matter to Achieve the Objectives
IAPK = Identifying Appropriate Previous Knowledge
SAVA = Selection of Audio-Visual Aids
DTMT = Determining the Teaching Methods and Techniques about the Subject Matter
IA = Introductory Activities
WSTI = Writing Student-Teacher Interaction for Presentation (Instructional Procedure)
ECB = Evaluating the Changes of Behaviour that are Anticipated in Children

Discussion of Results and Implications

In this study the effects of cooperative learning on the pre-service teachers' ability of lesson planning was searched. For this purpose control group and experimental group of pre-service teachers were formed. The result of the research goes in favour of the experimental group. The study clearly shows that cooperative learning improved the lesson planning abilities of the pre-service teachers. Cooperative learning develops the abilities in pupil-teachers to identify and define specific objectives, writing specific objectives in behavioural terms, determining suitable subject matter, identify previous knowledge and experiences of the students, selection of teaching materials, selection of teaching methods and techniques, plan out introductory activities, writing teacher-student interaction and evaluating the changes of students behaviour. In other words, we can say that cooperative learning develops in pupil-teachers all those necessary knowledge, skills and behaviours that are essential to make lesson plans. The results of researches, conducted by Johnson, Johnson and Smith (1991), Slavin (1983) and Carlsmith and Cooper (2002), that cooperative learning is superior than other learning, supports the results of the present research.

Cooperative learning method is different from individual and competitive learning methods in that it is based on the students cooperating to reach a solution to a problem. The results of this study showed that cooperative learning method is an important and essential learning method in the development of lesson planning abilities in pre-service teachers. In the light of the findings of this study and other empirical findings, we suggest that cooperative learning method should be used in all pre-service teacher education programs for the development of necessary lesson planning abilities in pre-service teachers. For this teacher educators should be trained in manage the cooperative learning environment in which pupil-teachers cooperatively helped to each other in the presence and supervision of teacher-educator. Cooperative learning has the power to prepare the skillful and knowledgeable future teachers.

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डी.एड. विद्यार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार, अध्ययन संबंधी आदतों तथा उनकी पारस्परिक क्रिया के प्रभाव का अध्ययन

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सारांश: *प्रस्तुत शोध के अंतर्गत डी. एड पाठ्यक्रम के विषय शिक्षा मनोविज्ञान के चयनित प्रकरणों पर प्रमाप द्वारा अध्यापन एवं परम्परागत अध्यापन द्वारा प्रमाप की प्रभाविता का उनकी उपलब्धि, अध्ययन संबंधी आदतों एवं प्रतिक्रिया के संदर्भ में अध्ययन किया गया। इस शोध में न्यादर्श के रूप में इन्दौर शहर के शासकीय जिला शिक्षा एवं प्रशिक्षण संस्थान (डाइट) के डी.एड. द्वितीय वर्ष में अध्ययनरत विद्यार्थियों में से 60 विद्यार्थियों को लिया गया था। शोध के लिए पूर्व परीक्षण पश्च परीक्षण नियंत्रित समूह प्राकल्प का प्रयोग किया गया, जिसमें प्रयोगात्मक समूह को प्रमाप विधि से तथा नियंत्रित समूह को परम्परागत विधि से 20 दिनों तक (अवकाश के दिनों कों छोड़कर) प्रतिदिनं 50 मिनिट की अवधि तक अध्ययन कराया गया। प्रदत्तों के संकलन के लिए शोधार्थी द्वारा स्वनिर्मित उपलब्धि परीक्षण का उपयोग किया गया था। विद्यार्थियों की प्रमाप के प्रति प्रतिक्रियाओं के मापन करने हेतु प्रतिक्रिया मापनी का निर्माण किया गया था। प्राप्त प्रदत्तों के विश्लेषण के लिए द्वि.मार्गीय सहप्रसरक विश्लेषण परीक्षण का प्रयोग किया गया। परिणामों से प्रदर्शित हुआ कि प्रमाप विधि, परम्परागत विधि से उपलब्धि के संदर्भ में प्रभावी पायी गयी।*

मनोविज्ञान का अर्थ

मानव व्यवहार का मूल्यांकन ही मनोविज्ञान है। मानव का व्यवहार उसके जीवन में आने वाले अनुभवों से निर्धारित होता है। इस प्रकार के व्यवहार को समझना ही मनोविज्ञान है। ''साइकोलॉजी'' शब्द की उत्पत्ति यूनानी भाषा के दो शब्दों "साइकी" तथा लॉगस से मिलकर हुई है। साइकी शब्द का अर्थ है, आत्माा तथा लॉगस शब्द का अर्थ है, अध्ययन। अतः अंग्रेजी शब्द साइकोलॉजी का शब्दिक अर्थ है "आत्मा का अध्ययन" या आत्मा का ज्ञान प्राप्त करना। यूनानी दार्शनिक प्लूटो, अरस्तू और देकार्ते ने मनोविज्ञान को "आत्मा का विज्ञान" कहा जबकि, पोम्पोनाजी (इटली) इसे मस्तिष्क का विज्ञान तथा विलियम जेम्स, विलियम वुंण्ट, जेम्स–सल्ली आदि विद्वानों ने इसे "चेतना का विज्ञान" तथा वाटसन, वुडवर्थ आदि विद्वानो ने इसे "व्यवहार का विज्ञान" बताया ।

मनोविज्ञान की परिभाषा

मनोविज्ञान की विकास की लम्बी यात्रा के दौरान मनोवैज्ञानिकों एवं मनीषियों ने चिंतन–मनन किया तथा मनोविज्ञान के स्वरुप को निर्धारित किया। मनोवैज्ञानिकों ने मनोविज्ञान की परिभाषाओं की रचना की। जो कुछ इस प्रकार है।

गैरिसन व अन्य (1985)

मनोविज्ञान का संबंध प्रत्यक्ष मानव व्यवहार से है।

वुडवर्थ (1979): – "मनोविज्ञान, वातावरण के सम्बन्ध में व्यक्तियों की क्रियाओं का वैज्ञानिक अध्ययन है"।
स्किनर (1898): – "मनोविज्ञान, व्यवहार और अनुभव का विज्ञान है"।

प्रमाप का अर्थ एवं परिभाषा

प्रमाप एक स्वअनुदेशन सामग्री है जो अपनें आप में पूर्ण होती है, प्रमाप में निश्चित विषयवस्तु को तार्किक एवं क्रमबद्ध रुप से प्रस्तुत किया जाता हैं। इसके साथ प्रत्येक विद्यार्थी अपनी गति, रुचि, क्षमता, आवश्यकता के अनुसार पढ़ता हैं एवं इसके माध्यम से शिक्षा के पूर्व निर्धारित उद्देश्यो को प्राप्त करता हैं, इसमें जो विषयवस्तु दी रहती हैं वह पुरी तरह से समझने योग्य होती हैं, इसमें विषयवस्तु का प्रस्तुतीकरण अंर्तक्रियात्मक, एवं व्याख्या

सामान्य तरीके से दी रहती हैं। इसमें विभिन्न गतिविधियॉ होती है, विषयवस्तु (कंटेंट) को समझने के लिए किसी अन्य पाठ्यसामग्री तथा संदर्भ साहित्य की आवश्यकता नही होती हैं।

प्रमाप अधिगम सामग्रियों का एक समूह है जिसके प्रत्येक तत्व एक दूसरे से जुड़कर अधिगम कार्य को प्रभावी बनाते है, तथा विद्यार्थी निश्चित रुप से अधिगम प्राप्त करता है। प्रमाप एक ऐसी शिक्षण विधि है जिसके द्वारा विद्यार्थी अधिगम श्रृंखलाओं के नियोजन के माध्यम से पूर्व निर्धारित उद्देश्य को प्राप्त करते हैं। प्रमाप एक ऐसी शिक्षण विधि है जिसमें कि निश्चित व पूर्व नियोजित अधिगम श्रृंखलाओं के माध्यम से शिक्षा के पूर्व निर्धारित उद्देश्यों की प्राप्ति करते हैं।

प्रमाप की परिभाषा

एरेन्डास एवं सहयोगियों (1971) के अनुसार :–"प्रमाप अधिगम क्रियाओं का एक ऐसा समूह है जो छात्रों के उपलब्धि के एक उद्देश्य या उद्देश्यों के एक समूह को प्राप्त करने में सहायता प्रदान करता हैं।"

डॉस्टन (1972) के अनूसार :– " प्रमाप अनुभवों का ऐसा समूह है, जिसकी रचना ,अधिगमकर्ता के द्वारा निर्दिष्ट या विशिष्ट उद्देश्यों को प्रदर्शित करने में सहायता प्रदान करती हैं "।

गोल्डस्मिथ (1956) के अनुसार :–"प्रमाप से तात्पर्य स्वपरिपूर्ण स्वतंत्र तथा नियोजित अधिगम श्रृंखलाओं से हैं जो कि छात्रों के पूर्व निर्धारित उद्देश्यों की प्राप्ति में सहायक होता हैं।"

खानवीज (1976) के अनुसार :– प्रमाप एक ऐसी विधि है जिसमें कि निश्चित व पूर्व नियोजित अधिगम श्रृंखलाओं के माध्यम से शिक्षा के पूर्व निर्धारित उद्देश्यों की प्राप्ति करते हैं।

प्रमाप की विशेषताएँ

1) प्रमाप लक्ष्य समूह (टारगेट ग्रुप) के लिए बनाया जाता हैं।
2) प्रमाप एक स्वअनुदेशन सामग्री होती हैं, छोटे–छोटे पदों में एवं सरल भाषा में होती हैं।
3) प्रमाप की भाषा अंर्तक्रियात्मक होती हैं।
4) प्रमाप शिक्षक की कमी को दूर करता हैं।
5) इसे विद्यार्थी अपनी गति के अनुसार पढ़ता हैं।
6) प्रमाप दूरस्थ शिक्षा (डिस्टेंस मोड) के लिए लाभप्रद होता हैं।
7) अनुदेशनात्मक उद्देश्यों (इंस्ट्रक्शनल ऑब्जेक्टिव) पर आधारित होता हैं।
8) प्रमाप उच्चस्तर के शिक्षण के लिए उपयोगी होता हैं।
9) प्रमाप में शब्दों का महत्व अधिक होता हैं, शब्दों का ध्वन्यांकन करना होता हैं।
10) प्रमाप अनुच्छेद के रुप में होता हैं।
11) प्रमाप में विषयवस्तु (कंटेंट) अधिक होती हैं।

प्रमाप की संरचना या घटक

1) दिशा–निर्देशन।
2) प्रारम्भिक व्यवहार।
3) अंतिम व्यवहार।
4) पूर्व परीक्षण।
5) प्रस्तावना।
6) प्रस्तुतीकरण।
7) सारांश।
8) अभ्यास प्रश्न या समस्यात्मक प्रश्न।
9) पश्च परीक्षण।

प्रमाप के लाभ

प्रमाप के लाभ निम्नानुसार है :

1) विद्यार्थियों में आत्मविश्वास की भावना विकसित होती है।
2) इससे छात्र सतत सक्रिय रहते है।
3) छात्र में स्व–अध्ययन की आदत का विकास होता है।
4) छात्रों में सृजनात्मक चिंतन का विकास होता है।
5) प्रमाप निर्माण की प्रक्रिया से शिक्षक द्वारा छात्रों को सैद्धांतिक व व्यावहारिक ज्ञान देने में सहायता मिलती है।
6) इससे शिक्षक को छात्र के सही मूल्यांकन में मदद मिलती है।

प्रमाप की सीमाएँ

प्रमाप की सीमाएँ निम्नांनुसार है :

1) समय एवं धन दोनों की दृष्टि से खर्चीला हैं।
2) छोटी कक्षाओं में इसका प्रयोग नही किया जा सकता हैं।
3) प्रमाप के द्वारा मानसिक योग्यता के उच्च स्तर को प्राप्त नही किया जा सकता हैं।
4) सभी विषयों पर प्रमाप विकसित करना कठिन हैं।
5) इसके द्वारा भावनात्मक पक्ष का विकास नही किया जा सकता हैं।
6) विद्यार्थियों में सामाजिकता के गुणों का विकास नही किया जा सकता हैं।

पृष्ठभूमि तथा तर्काधार

स्वअनुदेशन सामग्री में प्रमाप बहुत प्रचलित सामग्री है। इसमे प्रमाप से संबंधित कई शोध हुए है जिसमे एम्स (1981), होपर (1982), नेल्सन (1982), पेकारेरो (1982), कुक (1994), रालेण्ड (1995), रॉटरीगेंज (1995), के शोध प्रमाप के विकास और अभिकल्प के विभिन्न समूह से संबंधित है। कुछ अध्ययन ऐसे है जो प्रमाप की प्रभाविता से संबंधित है। टोड (1972), काजेरानी (1977), वेघन (1977), डे (1980), मैककुले (1980), गुण्डरम (1980), एण्डरसन (1980), क्राकेट (1980), जोन्स हार्नेस (1980), पावेल (1980), मुखोपाध्याय (1981), डि एंटिलो (1981), मेसून (1982), शर्मा (1982), मुद्जिमन (1982), गस्टेइन (1993), ग्रीन (1993), इलमोर (1993), स्वेरिंगन (1993), सेनापति (1998), पवॉर (2000), पटेल (2001), महाराणा (2003), लक्स और डेविडसन (2003), जोशी (2004), हुरमाडे (2004), पाटीदार (2005), कांकरेजा (2009), कुमार (2003), यादव (2010), सावले (2011), सूर्यवंशी (2012), शर्मा (2013), रोज़ड़े (2014), आदि ने प्रमाप के विकास एवं प्रभाविता से संबंधित अध्ययन किए जो कि विभिन्न विषयों पर, विभिन्न आयु समूह के लिए बनाए गए है। उपर्युक्त शोधों से पता चलता है कि अब तक विकसित किए गए प्रमापों का विषय शैक्षिक तकनीकी, कौशल विकास एवं सूक्ष्म शिक्षण, शिक्षण दक्षता, नागरिक शास्त्र, हिन्दी, गणित आदि अनेक विषय रहे हैं; किन्तु शिक्षा मनोविज्ञान विषय पर प्रमाप का विकास नहीं हुआ है। इसके अतिरिक्त पिछले विभिन्न शोध साहित्यों, लघु शोधों एवं परियोजनाओं के अध्ययन करने से यह बात स्पष्ट होती है कि बुध्दि परीक्षण, व्यक्तित्व मापन, परीक्षण के प्रकार, आदि पर मापन एवं मूल्यांकन विषय के अन्तर्गत प्रमाप निर्माण किया गया है, परन्तु शिक्षा मनोविज्ञान विषय के डी.एड़. पाठ्यक्रम की इकाईयों पर प्रमाप का विकास नहीं किया गया है। अतः इसे डी.एड. पाठ्यक्रम के विद्यार्थियों पर ही इसीलिए किया गया क्योकि डी.एड. प्रशिक्षणार्थी विद्यालयों में प्राथमिक स्तर के विद्यार्थियों पर अध्यापन कार्य करेंगे, अतः उनमें बालकों की अध्ययन संबंधी आदतों, उनके व्यवहारों को समझने के लिए मनोविज्ञान का ज्ञान होना आवश्यक है । इसके अतिरिक्त अध्ययन अध्यापन की परिस्थितियों में शैक्षिक तकनीकी का ज्ञान शी होना आवश्यक है, जिससे कि शिक्षण अधिगम को प्रभावी बनाया जा सकता है। अतः डी.एड़. शिक्षक प्रशिक्षणार्थियों के लिए शिक्षा मनोविज्ञान विषय का ज्ञान प्राथमिक कक्षा के विद्यार्थियों को समझने के लिए अत्यंत आवश्यक व उपयोगी है। शिक्षक प्रशिक्षणार्थियों की आवश्यकता, शोधार्थी की रुचि होने के कारण, एवं प्रमाप विकास की वर्तमान संदर्भ में आवश्यकता को समझते हुए अध्ययन के लिए इस विषय का चुनाव किया गया।

अध्ययन के उद्देश्य

विद्यार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार, अध्ययन सम्बन्धी आदतों तथा उनकी अंतक्रिया के प्रभाव का अध्ययन करना जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सहप्रसरक के रुप में लिया गया हो।

परिकल्पनाएँ

विद्यार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार, अध्ययन संबंधी आदतों तथा उनकी अंतक्रिया का कोई सार्थक प्रभाव नहीं होगा; जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सह प्रसरक के रुप में लिया गया हो।

शोध प्रविधियाँ

शोध विधि तंत्र

प्रस्तुत शोध अध्ययन की प्रकृति प्रयोगात्मक थी। जिसमें शोध का प्राकल्प असमान नियंत्रित समूह प्राकल्प (Non Equivalent Control Group Design, Campbell and Stanley, 1963) का उपयोग किया गया। इस अभिकल्प का चित्रात्मक प्रतिनिधित्व यहां दिया गया है–

0 X 0
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0 0

यहाँ
0 = परीक्षण
X = उपचार
----------- = गैरतुल्य

न्यादर्श में दर्शाए अनुसार, चयनित संस्थान के डी. एड. द्वितीय वर्ष के विद्यार्थियों को श्पूर्वक चयनित किया इसमें प्रायोगिक एवं नियंत्रित दोनों समूह का पूर्व उपलब्धि परीक्षण लिया गया। पूर्व परीक्षण लेने के बाद प्रायोगिक समूह के सभी विद्यार्थियों कों उपचार के रुप में प्रमाप स्वगति से पढ़ने को दिया गया। नियंत्रित समूह के विद्यार्थियों को कोई भी उपचार न देकर उन्हे परम्परागत विधि से पढ़ने दिया गया। फिर उन दोनों समूहों का श परीक्षण लिया गया। इसे निम्न सारणी से समझा जा सकता हैं।

पूर्व एवं पश्च उपलब्धि परीक्षण द्वि समूह

	पूर्व परीक्षण	उपचार	परीक्षण
प्रायोगिक समूह	01	x	02
नियंत्रित समूह	01	....	02

यहाँ 0 X 0
----
0 0

सारणी: *प्राकल्प का योजनाबद्ध विवरण*

क्र.	प्रायोगिक समूह	नियंत्रित समूह	समय
अ	पूर्व परीक्षण	पूर्व परीक्षण	60 मिनिट
ब	उपचार	....	20 दिन
स	पश्च परीक्षण	पश्च परीक्षण	60 मिनिट
द	प्रतिक्रिया मापनी	....	15 – 20 मिनिट
इ	अध्ययन संबंधी आदत सूची	अध्ययन संबंधी आदत सूची	40 – 50 मिनिट

समष्टि तथा न्यादर्श

प्रस्तुत शोध में न्यादर्श हेतु, सोद्देश्यपूर्ण न्यादर्शन विधि से शासकीय जिला शिक्षा एवं प्रशिक्षण संस्थान (डाईट) बिजलपुर, इन्दौर का चयन किया गया, इससे सत्र 2013–14 के डी.एड़. प्रशिक्षणार्थियों को जनसंख्या माना गया। न्यादर्श हेतु चयनित शासकीय जिला शिक्षा एवं प्रशिक्षण संस्थान के डी.एड़. प्रशिक्षणार्थियों को यादृच्छिक विधि द्वारा प्रयोगात्मक समूह (30) एवं नियंत्रित समूह (30) में आवंटित किया गया। विद्यार्थियों की कुल संख्या 60 थी। जो शिक्षा मनोविज्ञान विषय एक अनिवार्य विषय के रुप में पढ़ रहे थे। इस न्यादर्श में पुरुष एवं महिला विद्यार्थियों की संख्या क्रमशः 14 और 46 थी। न्यादर्श में डी.एड़. प्रशिक्षणार्थियों की आयु 22 से 40 वर्ष के मध्य थी। अधिकांश प्रशिक्षणार्थी मध्यम, सामाजिक, आर्थिक स्तर तथा कुछ प्रशिक्षणार्थी निम्न सामाजिक, आर्थिक स्तर से सम्बन्ध रखते थे। न्यादर्श में चयनित किये गये प्रशिक्षणार्थी शहरी एवं ग्रामीण दोनो क्षेत्रों से सम्बंधित थे।

	महिला	पुरुष	कुल
प्रायोगिक समूह	25	05	30
नियंत्रित समूह	21	09	30
कूल	46	14	60

उपकरण तथा तकनीकें

शोध के लिए उपकरण का चयन महत्वपूर्ण होता हैं; क्योंकि इसके द्वारा ही शोध के चरों का मापन किया जाता हैं। प्रस्तुत शोध प्रबन्ध में चरों का मापन अग्रलिखित उपकरणों के माध्यम से किया गया हैं।

उपलब्धि परीक्षण

शिक्षा मनोविज्ञान विषय के चयनित प्रकरणों पर विकसित प्रमाप की प्रभाविता का पता लगाने हेतु शोधार्थी द्वारा उपलब्धि परीक्षण का निर्माण किया गया था। इस परीक्षण में 50 बहुविकल्पिय प्रश्नों को शामिल किया गया था। जिसमें 15 प्रश्न सत्य या असत्य के, 15 प्रश्न रिक्त स्थानों की पूर्ति के, 10 प्रश्न विकल्पों में से सही विकल्प का चयन के, 10 प्रश्न सही जोड़ी मिलान। इस प्रकार इस उपलब्धि परीक्षण के लिए समय 1 घण्टा रखा गया था जिसके अंक 100 निर्धारित किये गये थें। यह उपलब्धि परीक्षण परिशिष्ट 'ब' में दिया गया हैं।

तालिकाः *उपलब्धि परीक्षण का प्रारुप*

बहुविकल्पिय प्रश्नों के प्रकार	सत्य या असत्य	रिक्त स्थानों की पूर्ति	सही विकल्प का चयन	सही जोड़ी मिलान	प्रश्नों की कुल संख्या
प्रश्नों की संख्या	15	15	10	10	50
प्रत्येक प्रश्न के अंक	2	2	2	2	कुल अंक 100

अध्ययन सम्बन्धी आदतों का अध्ययन

अध्ययन सम्बंधी आदतों के अध्ययन हेतु डॉ. एम. मुखोपाध्याय एवं डॉ. डी.एन. सनसनवाल (1983) द्वारा निर्मित उपकरण "स्टडी हैबिट इन्वेंटरी "(अध्ययन सम्बन्धी आदतों की अनुसूची) का प्रयोग किया गया प्रस्तुत उपकरण

20–35 वर्ष आयु समूह हेतु निर्मित किया गया है; इसकी विष्वसनीयता 0.91 है। अध्ययन सम्बन्धी आदतों के मापन हेतु दी गई मापनी में कुल 52 कथन थे, जिन पर प्रशिक्षणार्थियों को सदैव, बहुदा, कभी–कभी, कभी नही, पर अपनी प्रतिक्रिया व्यक्त करनी थी। इसमें दिए गए प्रश्न सकारात्मक एवं नकारात्मक थे। इनमें सकारात्मक कथन के लिए –4, 3, 2, 1, 0 एवं नकारात्मक कथन के लिए –0, 1, 2, 3, 4, अंक प्रदान किए गए। इसके शत् इन अंकों का योग कर लिया एवं उनका माध्य निकाल लिया गया।

प्रदत्त संचयन तथा विश्लेषण की प्रविधि

प्रदत्तों के संकलन हेतु जिला शिक्षा एवं प्रशिक्षण संस्थान (डाईट) बीजलपुर जिला इन्दौर के डी॰एड़॰ द्वितीय वर्ष के सत्र 2013–14 के प्रशिक्षणार्थियों पर किया गया। सर्वप्रथम डाईट बीजलपुर प्राचार्य महोदयजी से अनुमति प्राप्त कर शोध कार्य की प्रक्रिया का क्रियान्वयन किया गया। प्रयोग प्रारम्भ करने से पूर्व प्रयोगात्मक एवं नियंत्रित दोनो समूहों को पूर्व उपलब्धि परीक्षण दिया गया। पूर्व परीक्षण के लिए दोनो समूहों के विद्यार्थियों को 60 मिनिट (संस्थान के दो कालांश) का समय दिया गया। एक कक्षा के दो विभाग थे उनकों साथ में लाकर पूर्व परीक्षण दिया गया ताकि सबकों एक साथ एक जैसे निर्देश दे सकें। इस प्रकार प्रयोगात्मक समूह एवं नियंत्रित समूह दोनों का पूर्व परीक्षण लिया गया। इसके शत दूसरे दिन तृतीय कालांश में प्रयोगात्मक समूह के प्रत्येक प्रशिक्षणार्थी को प्रमाप पढ़ने को दिया गया। शोधार्थी द्वारा उपचार प्रदान करने से पूर्व आवश्यक निर्देश भी दिए गए। उन्हें बताया गया कि प्रमाप स्वगति से पढ़ने की स्वतंत्रता है प्रमाप को वे अपने साथ रख सकते है। प्रतिदिन इसे साथ लाने को कहा गया है तृतीय कालांश में फिर से उन्हे शब्दशः पढ़ने के लिए कहा गया, तथा उन्हे बताया गया कि प्रमाप में किसी भी प्रकार की भाषागत, व्याकरणगत, या समझने में कठिनाई होने पर तुरंत शोधार्थी को पुछ सकतें है। इस प्रकार विषयवस्तु को समझाने के साथ–साथ आने वाली कठिनाईयों को तुरंत सुलझाया गया। इसी तरह प्रत्येक दिन तृतीय कालांश में छुट्टियों को छोड़कर बीस (20) दिनों तक उपचार दिया गया। उपचार समाप्ति के तीन (3) दिन पूर्व स्टडी हैबिट इन्वेन्टरी दी गयी। दूसरी ओर इसी के विपरीत नियंत्रित समूह कों वही पाठ्यसामग्री परम्परागत विधि से पढने दिया गया। अर्थात उन्हे प्रमाप नही दिया गया। उपचार के समाप्त होने के शत् प्रायोगिक समूह और नियंत्रित समूह दोनों समूहों को पश्च परीक्षण के रुप में उपलब्धि परीक्षण दिया गया। पश्च परीक्षण के लिए साठ (60) मिनिट का समय दिया गया।

प्रदत्तों का विश्लेषण

विद्यार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार, अध्ययन सम्बन्धी आदतों तथा उनकी अंतर्क्रिया के प्रभाव का अध्ययन करना; जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सहप्रसरक के रुप में लिया गया हो। इस श के विष्लेषण हेतु द्वि–मार्गीय सहप्रसरण का प्रयोग किया गया।

परिणाम

डी.एड. प्रशिक्षणार्थियों की शिक्षा मनोविज्ञान में उपलब्धि माध्य फलांकों पर उपचार अध्ययन संबंधी आदतों एवं उनकी अन्तर्क्रिया के प्रभाव का अध्ययन करना जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को प्रसरक के रूप में लिया गया हो।

प्रस्तुत अध्ययन का उद्देश्य डी.एड. प्रशिक्षणार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार ,अध्ययन संबंधी आदतों तथा उनकी अन्तर्क्रिया के प्रभाव का अध्ययन करना, जबकि पूर्व शिक्षा मनोविज्ञान में उपलब्धि को सहप्रसरक के रूप में लिया गया हो। प्रमाप विधि द्वारा अध्ययन करने वाले 30 प्रशिक्षणार्थियों तथा परम्परागत विधि से अध्ययन करने वाले 30 प्रशिक्षणार्थियों को अध्ययन संबंधी आदत अनूसूची दी गयी थी। शिक्षा मनोविज्ञान में पूर्व परीक्षण लिया गया था, एवं प्रमाप विधि द्वारा प्रयोगात्मक समूह को उपचार दिया गया जिसे सहप्रसरक माना गया। अतः प्रदत्त विष्लेषण हेतु द्विमार्गीय सहप्रसरण विष्लेषण द्वारा किया गया है; प्राप्त परिणाम तालिका 1.1 में दिए गए है –

तालिका 1: *डी.एड. प्रशिक्षणार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार अध्ययन संबंधी आदतों तथा उनकी अन्तर्क्रिया के प्रभाव का अध्ययन करना जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सह प्रसरक के रूप में लिया गया हो।*

Sources of Variance	SSy.x	df	MSSy.x	F	Sign.
Study habit	67.400	1	67.400	.906	.345
Treatment	2906.55	1	2906.55	39.071	.000
Treatment × Study habit	12.026	1	12.026	.162	
Total	20443.93	59			

" 0.05 सार्थकता स्तर पर
0.01 सार्थकता स्तर पर

तालिका 1 से विदित होता है अध्ययन सम्बन्धी आदत के लिए समायोजित F का मान .906 है जो कि 0.01 स्तर पर सार्थक नही है, जबकि df = 1/59 है, इसका अर्थ है कि विद्यार्थियों की अध्ययन संबंधी आदत का शिक्षा मनोविज्ञान में उपलब्धि के समायोजित माध्य फलांकों में सार्थक अंतर है जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि, को सह प्रसरक के रूप में लिया गया है। इस संदर्भ में शून्य परिकल्पना कि "विद्यार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार, अध्ययन सम्बन्धी आदत तथा उनकी अन्तर्क्रिया का कोई सार्थक प्रभाव नही होगा, जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सह प्रसरक के रुप में लिया गया हो" निरस्त नही की जाती है।

अतः इससे निष्कर्ष निकाला जा सकता है कि विद्यार्थियों की अध्ययन सम्बन्धी आदत का शिक्षा मनोविज्ञान में उपलब्धि पर कोई सार्थक प्रभाव नही पाया गया, जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सह प्रसरक के रुप में माना गया था।

इसके सम्भावित कारण यह हो सकते है कि कई विद्यार्थियों की आदत नियमित अध्ययन करने की होती है तो कुछ केवल नोट्स से समय–समय पर ही पढतें है अतः इसीलिए जिनकी आदत नियमित अध्ययन की होती है वे परम्परागत विधि से पढने वाले विद्यार्थी थें। प्रमाप कभी–कभी पढ़ने वाले विद्यार्थियों को दिया गया मान सकते है, या जितनी प्रभावी प्रमाप विधि प्रयोगात्मक समूह के लिए रही उसी अनुपात में परम्परागत विधि नियंत्रित समूह के लिए प्रभावी रहीं ।

तालिका 1 से विदित होता है कि उपचार के लिए समायोजित F का मान 39.071 है जो कि 0.01 सार्थकता स्तर पर सार्थक है जबकि df = 40/59 इसका तात्पर्य है कि प्रायोगिक समूह एवं नियंत्रित समूह के विद्यार्थियों के समायोजित माध्य फलांको में सार्थक अन्तर है, जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सहप्रसरक के रूप में माना गया है। इस परिप्रेक्ष्य में शून्य परिकल्पना कि "विद्यार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार, अध्ययन सम्बन्धी आदत तथा उनकी अन्तर्क्रिया का कोई सार्थक प्रभाव नही होगा, जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सह प्रसरक के रुप में लिया गया हो " निरस्त की जाती है।

तालिका 2

उपचार समूह	संख्या (n)	माध्य (mean)
प्रायोगिक समूह	30	73.20
नियंत्रित समूह	30	41.27

तालिका 2 से विदित होता है कि प्रायोगिक समूह के शिक्षा मनोविज्ञान में उपलब्धि के समायोजित माध्य फलांक 73.20 थे जो कि परम्परागत विधि समूह के विद्यार्थियों के शिक्षा मनोविज्ञान में उपलब्धि के समायोजित माध्य फलांक 44.86 से सार्थक रुप से उच्च थे। इससे निष्कर्ष निकाला जा सकता है कि उपचार शिक्षा मनोविज्ञान में

उपलब्धि के संदर्भ में प्रभावी रहा। जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सहप्रसरक के रूप में लिया गया था।

इसके सम्भावित कारण है कि परम्परागत विधि नीरस एवं उबाऊ होती है। विद्यार्थी कक्षा में जो कुछ भी घटित होता है उसमें रुचि नहीं लेते या अन्य कोई कारण भी हो सकता है किन्तु उन्होने पहली बार प्रमाप (स्व अनुदेशन सामग्री) पढ़ा। तथा इसमें नवीनता के कारण एवं प्रमाप के गुणों जैसे विषयवस्तु का सरल प्रस्तुतीकरण, सरल वाक्य रचना। उदाहरण एवं पर्याप्त अभ्यास प्रश्न दिए जाने के कारण तथा संदर्भ इत्यादि के कारण विद्यार्थियों की रूचि अध्ययन हेतु बढी। विद्यार्थियों ने प्रमाप अपनी गति से सुविधा से रूचिपूर्वक पढ़ा। किसी भी प्रकार की कठिनाई आने पर शोधार्थी से पुछा एवं संदर्भ पुस्तकों की सहायता से दूर किया। अतः इसीलिए उपचार प्रभावी पाया गया।

तालिका 1 से स्पष्ट है कि उपचार एवं अध्ययन संबंधी आदत तथा उनकी अन्तर्क्रिया के लिए समायोजित F का मान 3.22 है जो कि 0.05 सार्थकता के स्तर पर सार्थक नही है जबकि df = 8/59 है। इसका अर्थ यह है कि शिक्षा मनोविज्ञान में उपलब्धि पर उपचार एवं अध्ययन संबंधी आदत के मध्य अन्तर्क्रिया का कोई सार्थक प्रभाव नही है जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सहप्रसरक के रूप में लिया गया है इसके संदर्भ में शून्य परिकल्पना "विद्यार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार, अध्ययन सम्बन्धी आदत तथा उनकी अन्तर्क्रिया का कोई सार्थक प्रभाव नही होगा, जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सह प्रसरक के रुप में लिया गया हो" निरस्त नही की जाती है। अतः निष्कर्ष रूप में कहा जा सकता है कि शिक्षा मनोविज्ञान में उपलब्धि, उपचार एवं अध्ययन संबंधी आदत; अन्तर्क्रिया से स्वतंत्र पायी गयी, जबकि पूर्व उपलब्धि को सहप्रसरक के रूप में माना गया था। उक्त परिणाम यह प्रदर्शित करता है कि अध्ययन संबंधी आदत प्रयोगात्मक समूह के विद्यार्थियों के प्रमाप तथा नियंत्रित समूह के विद्यार्थियों के लिए परम्परागत विधि प्रभावी पायी गयी।

तालिका 1 से स्पष्ट है कि उपचार एवं अध्ययन संबंधी आदत के मध्य अन्तर्क्रिया के लिए समायोजित F का मान .162 है जो कि मानक सार्थक स्तर 0.01 से अधिक है अर्थात यह सार्थक नही है, जबकि df = 1/59 है। अतः शून्य परिकल्पना "विद्यार्थियों की शिक्षा मनोविज्ञान में उपलब्धि पर उपचार, अध्ययन सम्बन्धी आदत तथा उनकी अन्तर्क्रिया का कोई सार्थक प्रभाव नही होगा, जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सह प्रसरक के रुप में लिया गया हो" निरस्त नहीं की जाती है। अतः यह निष्कर्ष रूप में कहा जा सकता है कि शिक्षा मनोविज्ञान में पूर्व उपलब्धि, अध्ययन संबंधी आदत एवं उपचार की अन्तर्क्रिया के प्रभाव से स्वतंत्र पायी गयी, जबकि शिक्षा मनोविज्ञान में पूर्व उपलब्धि को सहप्रसरक के रूप में लिया गया था। अर्थात् दोनों समूह पर अन्तर्क्रिया का कोई प्रभाव प्राप्त नही हुआ

अतः निष्कर्ष रूप में कहा जा सकता है कि अध्ययन संबंधी आदत प्रयोगात्मक समूह के विद्यार्थियों लिए प्रमाप जितनी मात्रा प्रभावी रहा उसी अनुपात में नियंत्रित समूह के विद्यार्थियों के लिए परम्परागत विधि प्रभावी पायी गयी।

परिणामों की विवेचना तथा अध्ययन के निहितार्थ

निष्कर्ष रूप में कहा जा सकता है कि– शिक्षा मनोविज्ञान विषय में उपलब्धि के पूर्व परीक्षण को सहचर लेने पर विद्यार्थियों की शिक्षा मनोविज्ञान विषय में उपलब्धि के बढ़ने से प्रमाप विधि सार्थक रूप प्रभावी हैं। प्रायोगिक समूह एवं नियंत्रित समूहों के समायोजित उपलब्धि माध्यों के मध्य सार्थक अन्तर पाया गया अर्थात् प्रमाप द्वारा शिक्षण प्रभावी रहा।

इसके सम्भावित कारण यह हो सकते है कि कई विद्यार्थियों की आदत नियमित अध्ययन करने की होती है तो कुछ केवल नोट्स से समय–समय पर ही पढतें है अतः इसीलिए जिनकी आदत नियमित अध्ययन की होती है वे परम्परागत विधि से पढने वाले विद्यार्थी थे। प्रमाप कभी–कभी पढने वाले विद्यार्थियों को दिया गया मान सकते है, या जितनी प्रभावी प्रमाप विधि प्रयोगात्मक समूह के लिए रही उसी अनुपात में परम्परागत विधि नियंत्रित समूह के लिए प्रभावी रहीं।

शैक्षिक निहितार्थ

प्रस्तुत शोध प्रबन्ध में प्रमाप का विकास किया गया था, जिसको मनोवैज्ञानिक, तार्किक एवं क्रमबद्ध रुप से प्रस्तुत किया गया था। अतः इसके शैक्षिक निहितार्थ निम्न हो सकते है –

- शिक्षा मनोविज्ञान विषय को पढ़ाने के लिए सभी शिक्षकों द्वारा प्रमाप (स्वअनुदेशन) का उपयोग किया जा सकता है।
- प्रस्तुत अध्ययन सामग्री प्रभावी पायी गयी। अतः दूरस्थ शिक्षा के विभिन्न पाठ्यक्रमों, जिसमें निम्न एवं उच्च स्तर के शिक्षण हेतु इस प्रकार की सामग्री का उपयोग किया जा सकता है।
- ऐसे शिक्षक जिन्होंने पूर्व में शिक्षा मनोविज्ञान विषय नहीं पढ़ा है वे भी इस प्रकार की सामग्री को पढ़कर लाभान्वित हो सकते है।
- महाविद्यालयीन स्तर पर प्रायः शिक्षकों द्वारा व्याख्यान विधि का प्रयोग किया जाता है, अतः स्वअनुदेशन सामग्री (प्रमाप) का उपयोग कर विद्यार्थियों को अधिक सक्रिय बनाए रखा जा सकता है। उनकी अध्ययन में रुचि उत्पन्न की जा सकती है।
- प्रमाप से समय की बचत होती है विद्यार्थी प्रमाप को पढ़कर उसमें दिए अन्तर्क्रिया प्रश्नों से स्वयं के अधिगम की जाँच कर सकते है।

पाठ्यपुस्तक लेखक

पाठ्यपुस्तक लेखक को विषयवस्तु को इस प्रकार से प्रस्तुत करना होगा कि अधिकांश विद्यार्थी जिससे अल्पगति अधिगमकर्ता, अति एवं मध्यम बुद्धि प्राप्त विद्यार्थी भी उसका लाभ प्राप्त कर सकें। अतः इसके लिए हम स्वअधिगम सामग्री का विकास कर सकते है। जिसमें सामान्य भाषा, अनुदेशन सामग्री से अन्तर्क्रिया की व्यवस्था, किसी भी प्रकरण विशेष पर सम्पूर्ण जानकारी एवं अनुदेशन सामग्री के बीच में तथा अंत में अंतर्क्रिया के लिए प्रश्नों की व्यवस्था रहती हैं। अगर इस शोध का उपयोग कर कोई पाठ्यपुस्तक लेखक अपनी पुस्तक लिखता है, तो वह पाठ्यपुस्तक अधिक उपयोगी तथा प्रभावी होगी। डी.एड़. एव बी.एड. स्तर पर भी पाठ्यपुस्तकें लिखी जा सकती है।

अध्यापक

प्रस्तुत शोंध से अध्यापक मार्गदर्शन प्राप्त करके वह जिस विषय को पढ़ा रहे है उसके विभिन्न प्रकरणों पर प्रमाप का विकास कर सकतें है। इसे वह अपनें विद्यार्थियों के स्तर व आवश्यकताके अनुसार बना सकतें है। अगर कोई शिक्षक इस प्रकार का कार्य करते हैं, तो वे अपने विषय में अधिक से अधिक अधिगम शें को प्राप्त कर सकतें हैं। इसके अतिरिक्त ऐसे शिक्षक जो शैक्षिक तकनीकी व प्रमाप के विकास की प्रक्रिया से परिचित हैं। वे प्रमाप के विकास का प्रशिक्षण प्रदान करने के लिए कार्यशाला का आयोजन कर सकतें हैं। इससे कई विद्यार्थी लाभान्वित हो सकते हैं।

विद्यार्थी

इसमें विद्यार्थी को अपनी आवष्यकता, योग्यता, समय, रुचि एवं गति के अनुसार ज्ञान प्राप्त करने के सुलभ अवसर प्राप्त होते हैं। और जब इस नवाचारी प्रक्रिया द्वारा विद्यार्थियों को स्व–अध्ययन के लिए दार्शनिक, मनोवैज्ञानिक, सामाजिक आधार पर विकसित स्वअनुदेशन सामग्री प्रदान की जाती हैं। जिसका अध्ययन कर वे स्वयं के ज्ञान में वृद्धि कर सकते हैं। विद्यार्थी किसी कठिन प्रकरण को प्रमाप के माध्यम से सरलता से समझ सकते हैं। प्रमाप का उपयोग करके विद्यार्थी उच्च उपलब्धि की प्राप्ति तथा अच्छी समझ विकसित कर सकतें हैं। चूँकि प्रमाप किसी क्षेत्र विशेंष संस्था, विषय, या विद्यालय विशेष के लिए बनाया जाता हैं, इसलिए इसमें कुछ हद तक विद्यार्थियों की व्यक्तिगत भिन्नताओं को ध्यान में रखा जा सकता है। प्रस्तुत शोध में शिक्षा मनोविज्ञान पर विकसित की गई अनुदेशन सामग्री (प्रमाप) के अनुसार विद्यार्थी अपनी आवष्यकता, योग्यता, समय, रुचि एवं गति के अनुसार इस विषय के अतिरिक्त अन्य विभिन्न विषयों जैसे गणित, सामाजिक विज्ञान, भूगोल पर विकसित अनुदेशन सामग्री का अध्ययन कर स्वयं का विकास कर सकतें हैं।

अध्यापक शिक्षक

ऐसे शिक्षक प्रशिक्षक जो शैक्षिक तकनीकी व प्रमाप के विकास की प्रक्रिया से परिचित हैं वे प्रमाप के विकास का प्रशिक्षण प्रदान करने के लिए कार्यशाला का आयोजन कर सकतें हैं। इससे कई विद्यार्थी लाभान्वित हो सकते हैं।

शोधार्थी

शोधार्थी प्रस्तुत शोध का उपयोग कर समाज एवं अधिगमकर्ता की आवश्यकताको ध्यान में रखकर विभिन्न विषयों के विभिन्न प्रकरणों पर प्रमाप का विकास कर सकते हैं और अपने शोध में मार्गदर्शन के लिए इस शोध का उपयोग कर सकते हैं।

भविष्य के शोध हेतु सुझाव

1) शिक्षा मनोविज्ञान के अन्य प्रकरणों पर भी प्रमाप का विकास किया जा सकता हैं।
2) प्रस्तुत अध्ययन से बड़ा न्यादर्श लेकर भी शोधकार्य किया जा सकता हैं।
3) यह प्रमाप डी.एड़ के शिक्षा मनोविज्ञान विषय के चयनित प्रकरणों के लिए विकसित किया गया था, इसके अलावा इसे बी.एड़. और एम.एड़ स्तर के लिए भी विकसित किया जा सकता हैं।
4) प्रमाप का विकास एम.एड़. स्तर पर प्रगत शिक्षा मनोविज्ञान, सांख्यिकीय एवं शोध प्रविधि जैसे विषय के प्रकरणों पर भी किया जा सकता हैं।
5) प्रमाप को विभिन्न भाषाओं में विकसित किया जा सकता हैं।
6) विभिन्न चरों जैसे –व्यक्तित्व, अभिक्षमता, बुद्धि, रुचि, को लेकर भी प्रमाप की प्रभाविता का अध्ययन किया जा सकता हैं
7) प्रमाप का विकास विद्यालय स्तर के विषयों जैसे – हिन्दी, संस्कृत, अंग्रेजी, गणित, विज्ञान, भूगोल, सामाजिक विज्ञान आदि के विभिन्न प्रकरणों पर भी किया जा सकता हैं।
8) ग्रामीण एवं शहरी विद्यार्थियों के संदर्भ में प्रमाप की प्रभाविता का तुलनात्मक अध्ययन किया जा सकता हैं।
9) विभिन्न सामाजिक – आर्थिक स्थिति वालें विद्यार्थियों को लेकर प्रमाप की प्रभाविता का अध्ययन किया जा सकता है।
10) यदि दृश्य–श्रव्य सामग्री का समावेश कर प्रमाप विकसित किये जाते है, तो वे और भी प्रभावशाली एवं सीखने योग्य होंगे। अतः एकीकृत प्रमाप विकसित किए जा सकते हैं।
11) प्रमाप विकसित कर विभिन्न शिक्षक–प्रशिक्षक संस्थाओं में प्रचार कर विषय विशेषज्ञ को प्रमाप विकसित करने के लिए प्रेरित किया जा सकता है।
12) प्रमाप की तरह पुस्तक का निर्माण किया जा सकता है ताकि सभी स्व–अध्ययन करने वालों के लिए उपयोगी हो सकता है।

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उच्च शिक्षा की संस्थाओं में स्कूल के शिक्षक की आवाज़ अपवाद न भी हो तो यह कभी कभार ही घटने वाली घटना रहे। प्रो. विजय एस वर्मा और डा. गुंजन शर्मा द्वारा संपादित यह पुस्तिका दिल्ली के 31 स्कूली शिक्षकों की बातचीत को आधार बनाकर उस द्वंद को प्रस्तुत करती है जो स्कूली चारदीवारी के बाहर एक आश्चर्य की तरह दर्ज़ की जाती है लेकिन स्कूल में यह रोज़मर्रा का मसला है, जैसे – सरकारी और निजी विद्यालयों की तुलना को से स्कूली शिक्षक न सिर्फ़ एक अन्यायपूर्ण तुलना की तरह देखते हैं, बल्कि वे निजी स्कूलों में "अच्छी शिक्षा" के मिथक को भी रेखांकित करते हैं। सरकारी स्कूल के शिक्षकों के बाबत यह पुस्तिका शिक्षकों के संवाद के जरिये उनकी एक ऐसी असहाय स्थिति को प्रस्तुत करती है जहाँ न सिर्फ़ व्यवस्थागत समस्याएं हैं, बल्कि उनके विद्यार्थियों की शिक्षा में कोई रूचि नहीं है। गैर अकादमिक कार्यों का बोझ और स्कूल में संसाधनों का अभाव असहायता की इस स्थिति को और सघन बनातें हैं। और इस पर से तुर्राये की स्कूली शिक्षा में आये दिन "नवाचार" होते हैं और सरकारी स्कूल के इन शिक्षकों से ये अपेक्षा होती है कि वे बगैर किसी सटीक प्रशिक्षण और प्रमाण के उन नवाचारों को स्कूलों में लागू करेंगे।

पुस्तिका का एक हिस्सा शिक्षकों द्वारा की जाने वाली "बेहतर शिक्षा की कल्पना" को प्रस्तुत करता हे जिसमें वे बेहतर स्कूली शिक्षा के लिए एक बेहतर नीति, शिक्षकों की स्वतंत्रता और समुदाय के ज़रिये पर्यवेक्षण कराने की बात करते हैं। शिक्षकों की इस बात से नाराज़गी दिखती हे कि उनकी भूमिका को उच्च अधिकारी आवश्यकता से अधिक नियंत्रित करते हैं। इसमें सब कुछ शामिल होता है; मसलन क्या पढ़ाया जाये? कैसे पढ़ाया जाये? कब पढ़ाया जाये ? यहाँ तक की मूल्यांकन कैसे किया जाये? इस पुस्तिका का यह हिस्सा शिक्षकों के शिक्षण शास्त्रीय अनुभव से उपजे हुए द्वंद्व को दर्ज़ करता है। इस द्वंद्व में पढ़ने पढ़ाने की सामग्रियों के अभाव और असंगत पाठ्यचर्या को शिक्षक अपने अनुभव के ज़रिये बताते हैं। अप्रैल 2010 के बाद भारत सरकार के कानून के तहत सतत और समग्र मूल्यांकन को प्रारंभिक स्कूलों के लिए अनिवार्य कर दिया गया। पुस्तिका का अगला हिस्सा सत्त और समग्र मूल्यांकन के विभिन्न पहलूओं को समेटता है और इस पद्धति से किये जाने वाले मूल्यांकन और उससे जुडी हुई ग़लतफहमियों का यहाँ एक बेहतर स्पष्टीकरण मिलता है। एक गंभीर कार्यशाला के जरिये की गई चर्चा इस तर्क का आधार बनती है। शिक्षक सतत और समग्र मूल्यांकन के नजरिये से तो सहमत दिखतें है पर साथ ही उनका मानना है की वर्तमान स्कूली हालात, जहाँ संसाधन और सामग्रियों की खासी किल्लत है, शिक्षकों की कमी है वहाँ इस को व्यवहार में लाने की कई समस्याएँ हैं।

पुस्तिका का तीसरा हिस्सा स्कूलों, खासतौर से सरकारी स्कूलों के अध्यापकों के विचारों पर आधारित है। दिल्ली का एक स्नातकोत्तर शिक्षक यह बताता है कि बेहतर स्कूलों में भी शिक्षकों के लिए ऐसी कोई जगह नहीं होती जहाँ वे अपनी शिक्षण सामग्री को रख सकें। शिक्षक छोटे–छोटे उदाहरणों के ज़रिये (जैसे अनुपयुक्त कुर्सी, टेबल या निहायत अप्रासंगिक सेवारत प्रशिक्षण इत्यादि), बताते हैं कि स्कूल के दिन प्रतिदिन की प्रक्रियाओं को सुगम बनाने के लिए कोई भी प्रयास नहीं किया जाता। अपने एक दिन का ब्योरा देते हुए ये शिक्षक बताते हैं कि स्कूल शिक्षकों को एक मशीन की तरह देखता है जहाँ वे घंटों दर घंटों काम करते चले जाते हैं और उनकी अपनी तैयारी के लिए कोई वक्त नहीं होता।

नीतिओं में निहित शिक्षण शास्त्रीय उदासीनता सरकारी स्कूलों के शिक्षकों को बड़े नियोजित ढंग से हाशिये की ओर धकेलती रही है। स्कूल के दायरे के भीतर शिक्षक और बच्चों के बीच जो संबंध बनते हैं, वह हमारे नीति निर्माताओं के लिए कोई विशेष सरोकार नहीं रखते। जबकि शिक्षकों की दुनिया में स्कूल में होने वाली दिन

प्रतिदिन की घटनायें और बच्चों की ज़िन्दगी एक मुख्य भूमिका निभाती है। शिक्षकों के लिए ये समझाना हमेशा से ही एक चुनौती रहा है की आखिर इन रोज़मर्रा की समस्याओं पर हमारे नीति निर्माता क्यों विचार नहीं पाते।

यह पुस्तिका स्कूल, बच्चों और शिक्षकों की दुनिया में होने वाली छोटी छोटी हलचलों, रोज़मर्रा के संघर्ष, शिक्षण शास्त्रीय उपेक्षा के बीच बेहतर करने की चाहत की एक नैसर्गिक इच्छा प्रस्तुत करती है। अलग अलग दौर में हुई बातचीत और गतिविधियों को पुस्तिका के संपादको ने बड़े सलीके से संपादित किया। यह संपादन पाठकों को एक ऐसी दुनिया में पहुँचाता है जहाँ वे शिक्षकों के नज़रिये से शिक्षा व्यवस्था और स्कूल पर सोचने पर विवश हो जाते हैं।

यह प्रयास उन लोगों के लिए काफ़ी मददगार है जो पेशेवर रूप से शिक्षा में काम करते हैं। इस पुस्तिका का उस दौर में आना जब शिक्षकों पर गहरे आरोप लगाये जाते हैं अपने आप में एक ज़बरदस्त अकादमिक हस्तक्षेप है।